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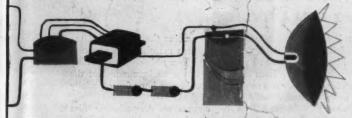
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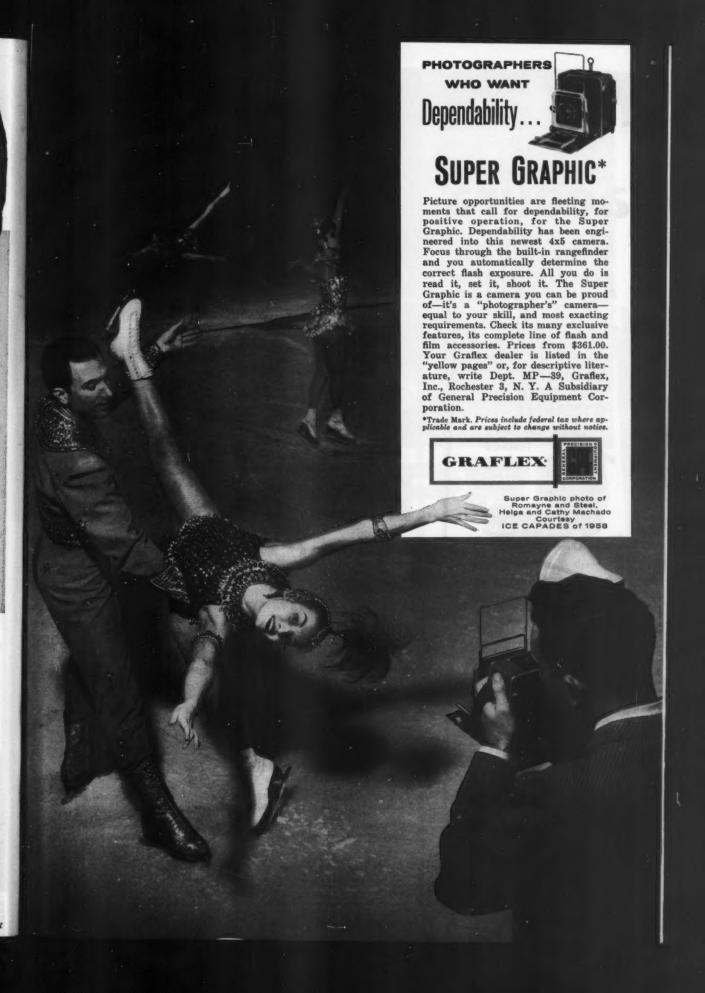
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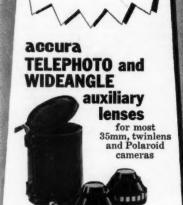




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PICTURE TAKING IDEAS

THE LIGHTS WENT OUT AND THE WOMEN SCREAMED! Auguste and Louis Lumiere: Grand Old Men of the movies	59
REVIEW OF AN EXHIBIT: 500 PHOTOGRAPHS FROM THE COLLECTION OF THE MUSEUM OF MODERN ARTby Herbert Keppler	60
FILM, LIGHTING, EXPOSURE: Stefano Robino solves the problem of indoor color	62
LISA LARSEN: THROUGH POLAND WITH A 35MM	74
BOUNCE FLASH EXPOSURESby Peter Gowland	92

TECHNICAL ARTICLES

ELECTRONIC FLASH: WHAT YOU SHOULD KNOW ABOUT ITby Charles Hellman	48
MODERN'S GUIDE TO 1959 FLASH UNITS by Norman Rothschild	
MODERN'S GUIDE TO BOUNCE FLASHby Peter Gowland	54
NEW PICTURES FROM OLD NEGATIVES EASY WITH KODALITH	56
FASTEST FILM FROM GERMANY: ISOPAN RECORD by John Wolbarst	68
SUPERFINE 35MM? HERE'S THE LATEST by Y. Ernest Satow	72
MODERN TESTS: An exclusive, monthly appraisal of equipment	84

MOVIES

HOW TO MAKE A WEDDING MOVIE	88
THE MOVIE MAKERby Myron A. Matzkin	100

DEPARTMENTS

COFFEE BREAK	10
NEW PHOTO BOOKS	14
ULTRAMINIATURE	20
LETTERS TO THE EDITOR	22
WHAT'S AHEAD?	24
MODERN COLOR by Norman Rothschild	28
CAMERA CLUBS	34
THE LARGE CAMERA	38
PICTURES IN A MINUTE	42
35MM by John Wolbarst	44
NEW PRODUCTS	46
DISCOVERY #41: CHARLES HARBUTTby Patricia Caulfield	66
MONTHLY CONTEST	82

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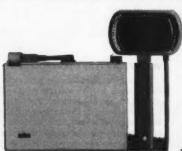
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Coffee Break with the Editors

THIS MONTH'S COVER . . .

Clues to what's inside MODERN for March: Stefano Robino, whose sensitive black-and-white pictures of his family are already familiar to MODERN readers, tells how he applies his techniques to color (page 62); complete report on new superfast Agfa Isopan Record film by John Wolbarst (page 68); electronic flash—how it works, what you should know about it (page 48)-how to use bounce flash, by Peter Gowland (page 54)—what's available in electronic flash for under \$100 (page 52); a portfolio of black-andwhite by photojournalist Lisa Larsen -part of her recent collection on Poland (page 74).

MAKING DO IN THE HIMALAYAS. . .

How would you feel about a sixweeks' job to photograph something you have never seen? Free-lancer George Holton, as a member of a party in search of the notorious "Abominable Snowman" of the Himalayas, found it (in what we trust is an understatement) "something different."

Walking from the Indian border to near the Tibetan border of Nepal, the five-man Slick-Johnson team carried nothing more dangerous than cameras, bows and arrows, and tranquilizing guns. The reason? Since the identity of the "snowmen" or "yeti" is unknown



Sherpa porter with supplies for lookout post passes by Tibetan prayer flags 15,000 feet up in the Himalayas.

and since some believe the reportedly tailless, seven-foot, reddish-haired bipeds to be a man-ape link, "killing them might be considered murder."

Although believed to live in alpine rain forests, "yeti" must be stalked above the snowline where their footprints can be seen. The upward climb halted at 15,000 feet.

How to warm your camera and keep it working in sub-zero temperatures? Very simple, according to Holton. You can try taking it into your sleeping bag with you. But after awhile a Hasselblad 1000F needs too much room, Holton found. So you leave it wrapped up and in the morning warm it by the stove. "No trouble at all" after its morning treatment.

When the only water you have is melted snow, how do you process film? You take it for a 25-mile hike (two days downhill) to below the snowline. There you duck your film into a zippered changing bag, put it in a tank, warm up your chemicals and go to work. Wash film in a near-freezing alpine stream and hang it up to dry on a tripod. "Hardly, much grain at all," Holton said of his Tri-X negatives. Finally, hand over the results to a Sherpa runner who will get them to the Indian border in 10 days, where they will be dispatched to news services.

What but snow to shoot in the absence of "yeti?" At first Holton was asked not to shoot expedition pictures since reflections from his equipment "might scare away the yeti." But later he did shoot a record of the five-man team, its "holing-up" camps camouflaged by transplanted rhododendron bushes, and of the Tibetan prayer flags and Nepalese workers.

End product? No "yeti," no pictures of "yeti." But plenty of pictures of the expedition and evidences of existing "snowmen." Maybe this winter will bring a photographic "first" from a new expedition already on its way to Nepal.

WATER, WATER, EVERYWHERE . . .

MODERN's condolences are extended this month to Consulting Editor John Wolbarst on his loss of two rare and precious rolls of Agfa Isopan Record film (see page 68). Wolbarst discovered to his amazement that Isopan Record does not have such fantastic speed if developed by mistake in pure water instead of developer.

AND WE DO TEST . . .

Every now and then some one drops us a note asking: "You don't really test all that equipment in 'Modern Tests' (page 84), do you?"

We're happy to report that we do. Each piece of equipment submitted to MODERN by an importer or manufacturer is assigned to a staff member

(Continued on page 12)

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COFFEE BREAK

(Continued from page 10)

who specializes in that particular type of equipment. He uses it for a period of two weeks to a month, at home and in the office, and runs full tests on it. Then he reports it good enough for "Modern Tests" or returns it to the manufacturer with a "sorry, no soap" note. The testing editor's opinions both pre and con on the equipment appear in the actual test write-up. We just don't believe in reporting on the good features and letting our readers find out about the others for themselves.

Sometimes we do test early production models or equipment for only short periods of time—when the equipment is in scarce supply and the manufacturer can only let us have it for a limited time. If this happens, we note it.

Frankly, we really enjoy getting a good look at all the new equipment and passing our results on to you. But when we can't get to sleep at night and start to count cameras jumping over the fence—and every camera is a different brand—we know we need a rest.

DON'T DROP WHAT? . . .

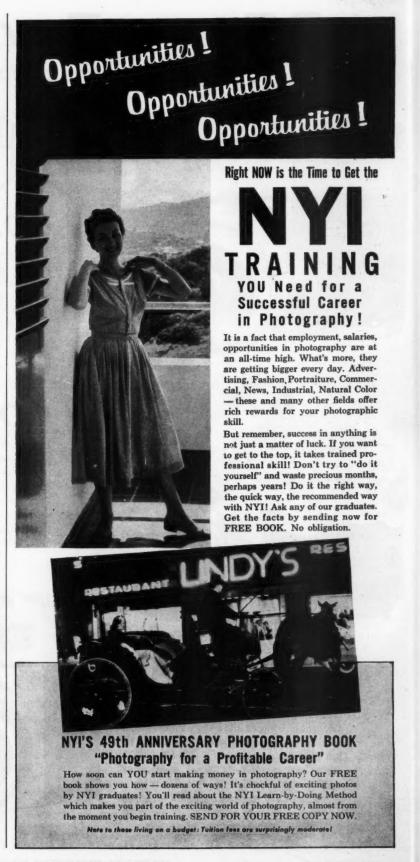
A Modern business staffer approached us the other day, holding a forlorn-looking 8mm motion picture camera. "It won't work," he said. And obviously it didn't. We issued standard advice No. 5897456—"Take it to a camera repairman." A few days later we asked after the ailing camera and found it had been returned to good health. On the way to the repair shop our man dropped the camera. Something gurgled, clicked, sputtered and coughed—and the camera worked. A great thing, American ingenuity.

AND IN WARSAW . . .

"Photographing people at worship is often arduous and embarrassing," remarked able photojournalist Lisa Larsen while we were preparing her portfolio of pictures from Poland (page 74). We knew what she meant, having often felt a strange twinge when attempting to photograph inside a church or picture people at prayer. We generally ended by putting our camera away. After all, isn't taking such pictures sacrilegious or an invasion of someone's privacy?

"In Poland the opposite is true," explained Lisa. "Most of the time worshippers are so absorbed in devotion that no camera could distract them. Even if it does, no one objects. In fact, Polish photographers carrying flashbulbs are permitted to shoot at any time, even near the altar.

"Once," she went on, "a young Polish priest tapped me on the shoulder. He had decided that the best view of the mass could be taken from the choir loft. Determined to get me there, he elbowed his way through hundreds of tightly-packed worshippers and cleared the way—but it was too much even for me and I gave up."



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Editor's note: Some books not directly related to photography are nevertheless of extraordinary interest to photographers. In the hands of scientists, psychologists, archaeologists, the camera fulfills an irreplace-able function. The book discussed below is an outstanding example.

Archaeology, once popularly considered the dullest of mankind's pursuits, has within recent years become the darling of the best seller lists No small credit is due to the work of C. W. Ceram whose Gods, Graves, and Scholars (1951), the first general history of archaeology, caught the fancy of the reading public. Ceram, who eschews the term "professional archaeologist," treated his subject with the literary devices of the best romantic detective story—suspense, treasure hunting, love of beauty, delineations of fascinating personalities. Now this same author has produced the first pictorial history of archaeology.

The result is that seldom-found volume—a picture book which must be read. Ceram's technique is simple—a headline on each page plus an illustration plus a block of text. The text has all the magic of that in his other books: there are no individual captions. The reader finds himself studying each illustration and learning from it. This is the classic use of the photograph/drawing/painting for a functional purpose.

The pictures were taken by unfamiliar names in photography. Many rare photographs were made by the archaeologists themselves; others are by photographers who specialize in the intricate demands of the field. Certainly photography has been almost as important a tool as the spade for the archaeologist. Until the invention of photography, they had to depend upon their own sketches or those of professional artists to tell the people back home what a temple or a sphinx looked like. The difficulty was that the artist was so conditioned by his own culture's taste in art objects that he sometimes found it impossible to do a realistic presentation. Example in point: the French draftsman Denon, who accompanied Napoleon on his Egyptian adventure in 1798. A comparison of his drawing of the sphinx at

(Continued on page 16)



why a NIKON SP

Nikon photography has gained thousands of new adherents, especially since the introduction of the Nikon SP. Why?

Many explanations have been offered. Some say the reason is in the Nikkor lenses. Others acknowledge the significance of these lenses, but point to the Universal Viewfinder System. And still others express the opinion that the 'advance-focus-shoot' ease of the SP is its most winning quality. There are even those who stress the attractiveness of the price.

We wonder what reason would predominate if this question were left to an open vote among readers of an informed magazine such as this. It would certainly prove interesting.

In all probability, no single reason can be expected to answer the question fully. Perhaps all of the reasons together—begin to approach the idea: the lenses, the viewfinder, handling speed, price, etc. Even then, there appears to be something lacking in the explanation.

When a man advances in his attitude toward photography to where he begins to think of it in terms of a Nikon SP, it is hard to believe that a single feature, or even several features, can influence his choice. More likely, he is now engrossed with photography as a creative art—a means of artistic self-expression. His camera becomes an extension of himself—an instrument to translate his creative urge into reality.

The question then still remains: why a Nikon SP—what is so special about the SP, that so many who have matured in photography are turning to it in increasing numbers?

The answer, we know, has something to do with the features. Yet, we must avoid looking upon these features as separate and apart from the camera. We must evaluate them with relation to the camera—what they do to extend its effectiveness as a creative tool. Let us then examine some of the major features of the Nikon SP in this light.

Fastest-handling '35' has become a synonym for Nikon SP. Is camera speed then vital? Yes, but not for the sake of speed alone. It is what this speed implies: smoothness and ease of operation, responsiveness, obedience to the will of the user without the needless intervention of mechanical manipulations. For, the art of 35mm photography lies not only in the photographer's ability to recognize the dramatic potential of a situation, but also in his ability to bring his camera into play at exactly the right moment.

So well-thought-out is the grouping of the main controls on the Nikon SP, that the camera can actually be handled with three fingers of one hand. Thumb on the film advance lever, middle finger on focusing wheel, and forefinger on body release — these three essential operations can be performed in as little time as it takes to say, 'advance-focus-shoot'.

The Universal Viewfinder System of the Nikon SP has been widely acclaimed. Yet, can it be said that this feature is indispensable? In view of the great work that has been done in photography long before the development of built-in, multi-lens viewfinders, this can hardly be the case. Yet, the contribution of the Universal Viewfinder System in bringing the SP closer to fulfilling the ideal role of the camera cannot be overstated.

That the Universal Viewfinder System has reduced the number of manual operations involved by eliminating the need for multiple accessory finders is one thing. But, even more significant is the greater effectiveness the Universal Viewfinder System has brought to lens interchangeability.

As a previewer, it is an infallible aid in selecting the 'right' lens for the picture—28, 35, 50, 85, 105 or 135mm. And having made the selection, it takes but a moment to mount the lens, and put it to use. In short, the SP with its Universal Viewfinder System, has closed the gap between the visualization of the picture and its creation.

The Nikkor lenses cannot be omitted from any enumerations of important SP features. For these lenses are, beyond question, the finest obtainable—recognized everywhere for their superiority in performance, for their incredible combination of speed and resolution.

With the Nikkor lenses as standard equipment, the Nikon SP opens up an entirely new world of photographic expression. It defies all previous limitations, and extends the horizons of the creative photographer beyond anything he has ever known. For with the speed of the Nikkor lenses, and their resolution at all apertures, pictures can now be created anywhere, anytime-as long as there is light enough to see by. The makers of the Nikon SP have brought many advances to camera design. But, of greater consequence is the way these innovations have been combined to make the SP the most complete, the most self-sufficient 35mm camera in the field.

The photographer with an SP senses a new, unencumbered ease, a new responsiveness. The camera virtually becomes alive in his hands. And he gains a confidence, a mastery that gives him complete command of the creative challenge of the picture situation before him.

If you have not yet discovered the magic in Nikon photography, we urge you to visit your photo dealer.

For fully illustrated brochures on Nikon cameras, Nikkor lenses and Nikon accessories, write:



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Nikon SP with 50mm Nikkor f2, \$369.50; with 50mm Nikkor f/1.4, \$415 Nikon S3 (identical to SP except for Trifocal Finder) with f2, \$309.50; and with f/1.4, \$355





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NEW PHOTO BOOKS

(Continued from page 14)

Gizeh and a photograph shows that Denon capriciously altered the headdress, and changed the facial features so that in his conception the mouth appears with full lips!

Photography does have its limitations. Ceram says, "Sir Mortimer Wheeler (one of the excavators of the Indus culture) bluntly called the camera 'an awful liar'." He quotes Ernst Buschor as follows, "... they (photographs) exaggerate the manner in which the structure merges with light and air, and in any case distort the harmony, alter the color, blur the proportions and introduce optico-pictorial elements."

Ceram concludes his comment: "Nowadays, in fact, there has developed—especially in France and Italy—a method of photographing antiquities which produces pictures of great technical and aesthetic refinement. Often these surpass the original; they always change it. But, these qualifications apart. . . The camera has by now become a priceless and irreplaceable aid, for it can yield excellent results in the hands of a man who would be unable to produce the crudest drawing."

A few years ago the great art historian Andre Malraux articulated a new idea. Calling one of his volumes Museum Without Walls, he said that advances in photography and reproduction processes had made books museuras for people who could not travel to see the originals of great works of art. This is true. However, until the time when all reproductions are in full color, the public will misread many works of the past. The colossal Assyrian walls at Ishtar were adorned by more than one hundred lions in colored glazed reliefs." The paintings on the interior walls of the pyramids vibrate with color. The armor of the Mexican Aztecs is in gold, their headdresses magnificent plumage of tropical birds. The ancient world was, if anything, more addicted to color than our own time of glorious Technicolor. Thus, the best black-and-white photograph is only an abstraction, a mere hint of the original. Nevertheless, let us be grateful to C. W. Ceram and his publishers for giving us the best picture cum text book of the year.

Photographic curiosa: Did you know that our old friend William Henry Fox Talbot, inventor of photography on paper, was a philologist and one of the first scholars to break the Assyrian cuneiform script? His paper was part of a book published by the Royal Asiatic Society in 1857 and was a genuine contribution to the solution of a difficult mystery.—J.B.



8MM & 16MM MOVIE EQUIPMENT RAT-ING GUIDE, by Myron A. Matzkin. 127 pages, profusely illustrated. Universal Photo Books. \$1.95

Unless you don't mind being tarred and feathered, then run out of town on a rail by infuriated camera manufacturers, you're apt to pull your punches when writing a truthful guide book on equipment. Of course you can always write a guide book stating that every piece of equipment is grand, simply grand. It won't help readers, but you don't make enemies either.

Matzkin has done neither. But he has concocted a splendid guidebook covering cameras, projectors and sound equipment suitable for the home. By comparing his enthusiasm for some equipment with his lack of it for others you can quickly see how he really estimates the units.

I can't imagine any movie maker resisting this book if he really wants to own the best equipment for the money he has to spend.—H. K.

THE GERMAN PHOTOGRAPHIC AN-NUAL 1959. Edited by Dr. Wolfe Strache. Translated from Das Deutsche Lichtbild 1959. 206 pages, illustrated. Amphoto, N. Y. \$7.95

Last year, in reviewing the German annual for 1958, we asked a somewhat rhetorical question: were the Germans, in terms of turning out interpretative, "modern" pictures, growing up? We felt then that the outlook was hopeful. Today, judging from the 1959 Annual's standards, that question has been positively answered indeed.

For once, for this reviewer at least, the German annual is almost totally worthwhile—both to read and to look at—more than once.

How often are annuals read? Probably infrequently. Few have much to say, when you come right down to it. In this volume, however, is a most readable and thoughtful essay by Dr. Karl Pawek: "Do We Have a New Photographic Style Today?"

("The modern camera added a third dimension by plunging itself into photographic space . . . has its place among the subjects it photographs. Formal picture taking is no longer the aim of modern photography.")

In terms of pictures, the content of this year's book is leaps and bounds ahead of the previous volume. Selection is superior on the part of the editors; techniques and "seeing" are superior on the part of the photographers. The pictures have been edited, that is, put together with some sense and forethought. And they have been grouped under categories, which was not the case last year.

The categories or sections have somewhat vague headings such as "Modern Man," "The World We Live In," "Abstract Graphics." But the arrangements of pictures within these sections are reasonable, rather than haphazard.

Like the movie-goer who watches a (Continued on page 18)

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NEW PHOTO BOOKS

(Continued from page 16)

complicated piece of cinematography and says excitedly: "If I had done that . . ." this reviewer can cite only one outstanding oversight in neglecting to put two pictures on the same spread. On one right-hand page gasmasked scientists demonstrate atomic air raid protection. It's a macabre scene, but is in relation to nothing. Two pages later a five-legged frog, the result of radioactive treatment during germination, stands dismally on its two hind feet. Here certainly is a case where two isolated elements would have worked powerfully if combined.

Generally the documentary and design work is strong; in a few instances, stirring. German fashion photographs remain quite Tyrolean catalog-ish: a little overweight and tedious.

As usual, European engravers and printers continue to do their best—which is superb work.—D. J.

BULLFIGHT. Text and photographs by Peter Buckley. 192 pages, illustrated. Simon and Schuster. \$10

There have been books on bullfights, so many books. There have been those books (or articles and single shots in magazines) that glorify the sight of blood and gore and lubricous slaughter. But efforts to explain the rationale behind all this apparently are infrequent.



"The horns, long and hard, can lift a horse, kill a tiger, catch a leaf."

Condone the art and passion of the bull ring or not, one must admit that Mr. Buckley deals with it incisively. His photography is superb, and there is considerable excitement in the way his pictures have been edited into book form.

Leicas (M3's) and long lenses (up to 300mm) have brought single large images up close to full page (9x12 in.) size. There is no escape from the matador's eyes, a soaring bull, the swirl of a cape, wet trickle of blood:

all these images are paced, to sustain the structure of the bullfight.

It is on such a structure that Mr. Buckley, who has had many a season's experience with the subject, incidentally, built his book in text and pictures.

It is common knowledge that most photographers, however capable with their cameras, are horrendously inept with their typewriters. The author, however, has written an imaginative, a vigorous and compelling text, a fictional account of a bullfight day.

His descriptions and characters have a ringing realism. The anxiety, tension, egoism—of bullfight participants and spectators—are there, building suspense and stoking ugliness, selfishness, ardor.

It's not a pretty business. But neither is a lot of reality. Mr. Buckley has surveyed it with a cool, yet dedicated eve.—D. J.

MAGNETIC SOUND RECORDING FOR 16MM MOTION PICTURES, 64 pages, profusely illustrated. Eastman Kodak Co. 50 cents

Here's an excellent primer for the industrial photographer or advanced amateur going into magnetic sound on film. It surveys equipment, script preparation, shooting for sound, basic recording techniques, using a microphone, narration, studio recording, and editing for and with sound. The language is simple, straightforward and lucid throughout.

The book removes some of the fog that has surrounded home recording on film and at the same time provides concrete information on advanced techniques for the professional.

If a theme were to be selected for this book, one might easily choose one sentence from the chapter on script preparation: "A motion picture is essentially a visual medium, and the addition of a sound track should only enhance, not alter, the basic premise ... with the visual presentation as the dominant element."—M. A. M.

THE WORLD IS YOUNG, photographs and text by Wayne Miller. 193 pages, many illustrations. Ridge Press. Cloth cover, \$10; paper bound, \$1.50

The World is Young, produced by the same publisher and in the same style as The Family of Man and The Private World of Pablo Picasso, measures up to the standards set by its predecessors. It is an outstanding documentary interpretation of the lives, feelings, reactions and development of Miller's own four children (primarily) and of their friends.

The book contains a maximum of photographs, a minimum of text. The pictures themselves, the layouts, and the reproduction are all excellent. Highly recommended for everyone interested in children and/or photography.—P. C.

These and other books are available through MODERN PHOTOGRAPHY Book Store; see advertisement on page 33.





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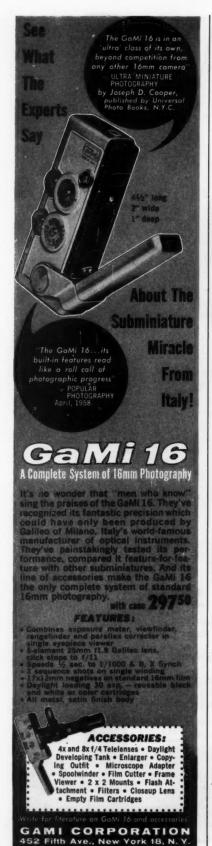
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ULTRA MINIATURE

by JOSEPH D. COOPER

How to select the best equipment to make your own prints.



If you want to get the most out of your negatives you ought to try making your own enlargements. In addition to giving you better prints, enlarging helps you learn how to take better pictures, for each en-

largement becomes a study in picture composition and quality.

First of all, you'll need an enlarger, which you can buy new at a list price of from \$49.95 to \$275. Or if you already have an enlarger for use with larger size negatives you may be able to convert it. If you're really handy with tools, build your own.

While you can use a bigger enlarger, without adaptation, this ordinarily is not satisfactory because (1) you can't get much magnification, even at the top of the enlarger column, (2) there is a greater likelihood of vibration when the enlarging head is used at the top of the column and (3) exposures are slower because only a fraction of the illumination output is used.

Although an enlarger designed for ultraminiature films is to be preferred because of its compactness and because its controls are appropriately scaled to size and output, you certainly should not reject the idea of converting an already available enlarger. With Beseler enlargers, the optical system is such that all you would need is a one-inch lens and the appropriate film carrier. Burke and James, Inc. will convert their Solar enlargers for ultraminiature negatives. Their Thimble 35 adapts readily by substitution of a oneinch lens. Simmon Bros. sells a oneinch lens and matching condenser for the Omega A-2.

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signed specifically for your film: GaMi, for GaMi 12 x 17mm frames, other 16mm and Minox films, \$275.

Minilux, for Minicord and other 10 x 10mm frames, uses either the Minicord camera for projection or an independent lens which is available separately. \$65 for adapter; \$45 for accessory lens.

Minolta "3 in 1," for 16mm and Minox films, but adaptable to 35mm with substitution of 50mm lens (not supplied). \$49.95.

Minox III, for Minox 9.5mm film and 16mm film with a frame size of 10 x 10mm only. \$189.50.

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Miniature enlargers generally employ condenser lenses to concentrate the light source most effectively. They increase contrast, as is generally desirable with the somewhat thin negatives preferable from a fine grain standpoint. They do, however, bring scratches and dust into sharper view. For this reason, some condenser enlargers have built-in or supplementary diffusion arrangements.

The focal length of the enlarging lens (to which the condenser lens must be matched) ordinarily should be no more than one inch to enable you to get enough magnification on the enlarger baseboard. Longer focal lengths permit smaller maximum sizes.

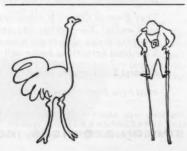
A glassless and scratchless film carrier is a must. Remember that a glass sandwich has four surfaces, each a determined dust catcher.

Enlarger checks

As general criteria, make sure the enlarger of your selection (1) is rigid even when the enlarger head is run up to the top and (2) the controls operate evenly and smoothly.

I'm indebted to Mr. Donald M. Gorman for schematic drawings of a fixed focus enlarger which you can make yourself. It used a 25mm lens and an electronic light source. It is adjustable for several degrees of enlargement. If you'd like his plans, write me. No charge, but a stamped self-addressed envelope would help.

I'll take up other phases of enlarging in a subsequent column.—THE END.



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What's more, the Exakta does not restrict you to the use of lenses from one factory alone. The world's greatest lens manufacturers are constantly striving to produce new lenses for this masterpiece. The reason for this? For over a generation the Exakta has been the time proven classic in camera design. That is why with your Exakta you can enjoy a choice of fine lenses from many leading optical plants.

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TO THE EDITOR

Thick in the Hollywoods

Sira

In the December issue of MODERN you yak about the Sept camera. Here in the West, around Hollywood, the woods used to be thick with them. They were used to run test strips on location. However, they are scarce and hard to find. . . .

H. F. Blankenship North Las Vegas, Nev.

Sirs

Just noticed your article about the French Sept movie camera in "Coffee Break" (December). My dad had one in 1938 when we lived in Louisiana. It was everything your article said. True, it was noisy, but actually took very good movies and stills. We had a lot of fun using it.

Your article caused a bit of nostalgia as I remembered happy times with our Sept camera.

Yonkers, N. Y. Sydney B. Mallet, Jr.

Sira.

Your naivete in describing "discovery" of the Sept camera (page 12, Dec. 1958) causes me to wonder what ecstatic display I shall read in some future issue that you have learned that photographers used to use cameras that took only glass plates.

In the late 'twenties you could buy a Sept with two cassettes and a genuine leather case for about \$35. Previously they were much higher. Later they also rated a premium because of scarcity.

Helena, Montana

• Glass plates?—Ed.

W. P. Wright

Two Cents

Sirs:

I have just finished reading John Wolbarst's article on 35mm in the January issue and couldn't wait two years to comment, as the article suggested. I enjoyed "Whither the 35," especially the closing comment, "Every day and in every way the 35's are getting bigger, bulkier and less miniature." I say "amen" to that. How can manufacturers expect the 35 to be popular for quick shooting when they are picking up more weight each year? Was not the whole idea of 35 based on ease, lightness and precision? Well, that's my two cents. Thanks for fine 35 articles.

Chelsea, Mass.

H. M. Siegel



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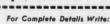
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What's Ahead?

by LLOYD E. VARDEN

Predictions made three years ago: How many have already come true?



My column in the May, 1955 issue of MODERN **PHOTOGRAPHY was** entitled, "What's going to happen in photography in the next 20 years?" That was not quite three years ago, but already some of the predictions

I made then have come to pass.

For example, I voiced the opinion that within 20 years black-and-white films having exposure indexes of 1200 would be commonplace and that for special purposes films would be rated as high as 5000. Advances in the speedof black-and-white films, plus revision in thinking about assigning exposure indexes for best results, have enabled three manufacturers to introduce films which, under many circumstances, can be exposed at indexes in excess of 1200. I refer to Kodak's Royal Pan and Royal-X Pan films, Ansco's Super Hypan film and Agfa's Record film. No doubt others will follow in the near future. Only Kodak Royal Pan existed at the time of my prediction, and so the introduction since then of other films of similar speed makes the "commonplace" aspect of the prediction valid. And Royal-X Pan, under special conditions, can be exposed at ratings as high as 8000, which covers my prophecy that for special purposes films would be rated as high as 5000. Some Polaroid films for special applications can be exposed at equally high exposure indexes.

Other advances

In the case of color reversal films I anticipated an upper limit of E.I. 64. But within a few months after my column appeared Ansco startled the photographic world with its Super Anscochrome, conservatively assigned an exposure index of 100.

On the basis of more or less traditional thinking in regard to emulsion sensitivity it was my opinion in 1955 that color negative films would be increased in speed ahead of color reversal films. But the opposite has so

(Continued on page 30)



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Making color prints can be tedious, but there are short cuts and tricks. Here are some.



Processing an Ektacolor or Anscochrome Printon color print takes a relatively long time. Then if your print isn't satisfactory, it's a long hard task to find a remedy and remake the print.

If you make contact sheets from your favorite negatives. however, you can tell pretty well beforehand what exposure to give, what filter correction to make and where to dodge or burn in. The trick is to set up the same exposure conditions for contact printing as you would if you were making an enlargement.

For instance, if you plan to make 8 x 10 enlargements from each negative, then raise the enlarger to the height necessary to make such a print. Use a negative to adjust focus properly, but remove it from the enlarger before contact printing. Of course you should use a negative carrier or mask of the proper size.

Exposure

The contact sheet paper with transparencies and glass on top should then be exposed in the beam of light from the enlarger. On the back of the contact sheet, write the exposure time, filters and f/stops used. To mark the acetate back of Anscochrome Printon I've found a Parker 51 pen and its special ink useful, although regular pen and ink (not a ball point pen) works fairly well.

If the contact sheet exposure is correct, the exposure time for an 8 x 10 enlargement will be substantially the same.

As a quick rough check for correct exposure for Ektacolor paper, process an exposed sheet for 1½ min. at 68°F. in Kodak Dektol diluted 1:2. The color print to be processed will require one stop less, or half the exposure of a correctly exposed test made by this method.

A rough check for Anscochrome Printon: Use Ansco Jet #2 paper and develop 1½ min. at 68°F. in Ansco Vividol developer diluted 1:2.

Examination of the contact sheet will also give you a clue as to what filter changes, if any, will be needed. Two extra contact sheets—one with 1½ to 2X normal exposure, the other with ½ to ½ the correct time—processed along with the "normal" sheet can give you helpful dodging and burning-in information.

The more heavily exposed sheet would show the darkening effect of burning-in on Ektacolor paper or the lighting effect on Anscochrome Printon.

The less exposed sheet will help show the lightening effect of dodging on Ektacolor paper or the darkening effect on Ansochrome Printon.

Varied density: three sheets

Where it's necessary to make contact sheets from groups of negatives of varied density, the making of three differently exposed sheets will be invaluable as a source of exposure information.

Of course finished prints should always be made on the same batch of paper as those used for the tests.

Free Literature

To the list of helpful brochures which aid camera owners, add a 20-page booklet on the Fulica 35ML. The prominent features of the camera are outlined and functional pictures illustrate its handling ease. Other pictures show the 35mm's versatility in taking action, candid and available light shots. For your free copy of Fujica 35ML, write Caprod Ltd., 251 Fourth Ave., New York 10, N. Y.

Two booklets from the Sekonic Electric Co. discuss features of the new Sekonic Movie Pet meter and the Sekonic Pet for use with Polaroid Land and cameras with LVS systems. For your free copies, write Scopus Brockway, Inc., 404 Fourth Ave., N. Y. C. or Ponder & Best, Inc., 814 N. Cole Ave., Hollywood, Calif.

Enteco's Filter Information folder has been revised to include filter data on the latest black-and-white and color films. The seven sections explain in clear terms which filter to use, with simple explanations of the filter's purpose. Filter factor, film speed and light source color temperature charts complete this handy reference. The folder is small enough to slip into the back of your camera case. For your free copy of Filter Information, write Enteco, 610 Kosciusko St., Brooklyn 21, N. Y.

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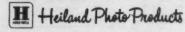
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What's Ahead

(Continued from page 24)

far been witnessed. Color negative films have been increased in speed during the past three years, but the predicted speed increase to an exposure index of 125 has yet to come. However, improved sharpness and color rendering characteristics of color negative films have been achieved.

I still have 17 years to go before I'm proved wrong in some of my predictions. But within this time I still maintain, for example, that the Polaroid Corporation will have a one-step, or perhaps two-step, color print material for use in a camera not far removed from its present "one-minute" cameras. Discussions on such a material have appeared within the past year in technical journals, although prematurely. Nevertheless, all evidence points to the fact that a color print product for Polaroid-type cameras will be on the dealer's shelves before many more years have passed.

Nearly all photographic paper manufacturers now have contact and enlarging papers incorporating whitening agents (fluorescent compounds) to give improved "whites," whereas three years ago this was just coming into being. And multi-contrast papers have continued to come to the front, as predicted.

Automation

Cameras with automatic photocell exposure control have been introduced at a rate much faster than I expected. And even a closed circuit color television device has been developed within the past three years for displaying color negatives as color positives. At least one such instrument is in daily use for the visual color evaluation of motion picture color negatives, and several more are being made. In time the cost of these devices will be reduced to a level that will allow dealers to install them for use by customers. This approach is the only one so far conceived that permits a color negative image to be viewed as a color positive, and at this writing there seems to be no other means for accomplishing the same thing.

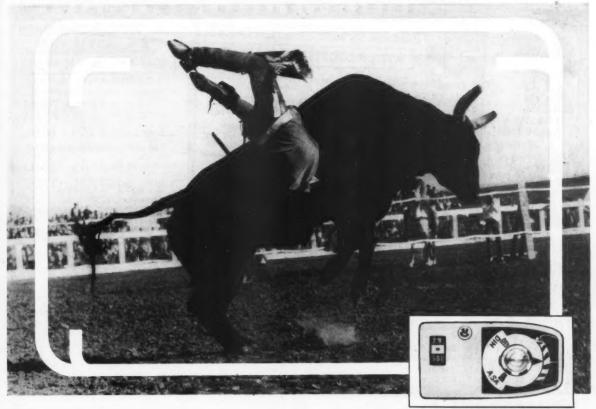
Electronic auto-focus equipment has also been developed, as I predicted. But up to now the cost of such equipment precludes amateur applications. However, in the good old American tradition, once an idea has been brought to practical fruition, it doesn't take long before costs come down if a general need for the equipment exists.

Several other predictions that I made in 1955 have yet to be realized. But at the rate progress is being made I now doubt that 17 more years will be necessary to bring them about. Probably within five years I shall have to write another column entitled "What's going to happen in photography in the next 20 years?"

THE END

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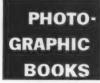
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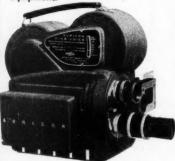
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the CAMERA CLUBS

by MABEL SCACHERI

Now is the time to give your club a long, close look of reappraisal.



As the camera club season moves on toward its close, it is well to take stock of how your club is doing, to talk things over with the other members and see whether any changes are desirable. I have

noticed a tendency this season to give club operation quite an overhauling.

For instance, many clubs are wondering whether their print and color slide contests should be held monthly, or not quite so often. I have wondered about that for a long time. I am always hearing a contest or program chairman exhort the club, "Come on, send in more prints and slides, we are having a first-rate judge at our next meeting, let's not insult him with a measly handful of pictures."

Sounds kind of strange, don't you think? Here we have a group of people supposedly interested in photography, yet they must be prodded and needled into shooting pictures. Who likes this sort of pushing around? Who wants to take pictures on schedule?

And how have the clubs gotten themselves into this get-out-and-shoot routine anyway? It goes back a few years to that era when everybody worked only in black-and-white, when getting into a salon was the height of every shutterbug's ambition, when club contests and rivalry were the breath of life to the camera club crowd.

Are contests necessary?

There is really no federal law compelling clubs to hold monthly contests—or any contests. It would be entirely possible for a club to meet, let everyone turn in some samples of his work if he wanted to, and have some pundit and/or other club members discuss the pictures in a constructive way. After such discussions, the club might then profit by holding a few contests, four times a year, or once a year, just to please those who get that childish kick out of winning. Yes, I do think that growing too emotional over contests is childish.

This business of contests, and many other vital camera club matters, you can read about in an excellent new booklet, How to Run a Live Camera Club, put out by the Audio Visual Service of the Eastman Kodak Co. It can be obtained free from Eastman by a club program chairman, and I strongly advise clubs to make use of it.

As this booklet points out, the program chairman who wears himself hoarse urging members to turn in more prints and slides will also remark, "The club members just want to be entertained." Well, why not? If that is what the members want, why not give it to them? They sure won't remain members long in a club not offering what they crave.

The catch is, of course, that some of the members may want only good times and companionship while others want serious talks and demonstrations which will improve their photography. The only way out of this dilemma is to give them both. Let one meeting be instructive, the next social. The club would split into two parts? Let it. Then each half could become a separate club. That is better than letting the whole group wrangle itself all to pieces and out of existence.

More action, less talk

Another nugget from the Kodak booklet concerns audience participation. The idea is that all too often the club members sit and listen to some-body tell them how to do this or that. Five minutes of talk and the rest of the time spent in letting each member of the club take a hand in trying to do the deed would be more valuable and much more interesting.

How could they take part in learning composition? Why, by getting together some table-top material and letting each member have a hand in arranging the items. If you don't favor table tops, then try some photograms. Or have the group learn how to make close close-ups. Or try to make several different pictures from one negative containing a good bit of detail.

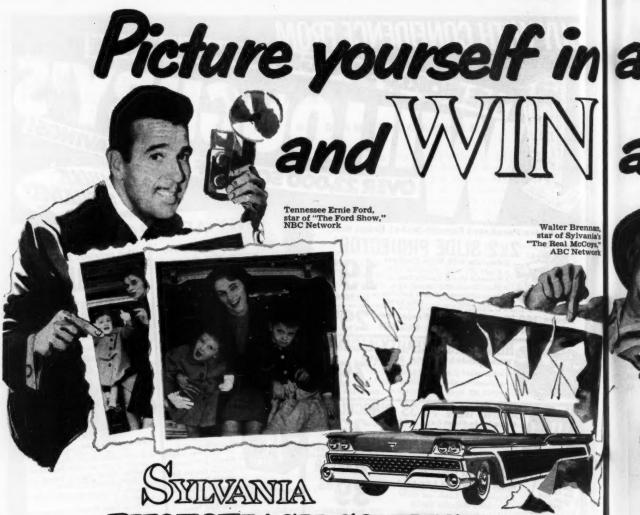
On the entertainment side, you can have photo quizzes and auction nights, scavenger hunts, picture-titling games, raffles. Simple refreshments are wonderful ice-breakers.

It is impossible to say which of these suggestions fits your group. Perhaps your club is going strong and you have no wish to make changes. But make sure about this. Have a private talk with the members of your club and see whether they are indeed perfectly satisfied with the status quo.—THE END



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1a. Photographers who derive their maximum yearly income from commercial photography are also not eligible to enter this contest.

2. Pictures must be in black and white, no smaller than 2½" x 2½" and no larger than 5"x 7". Neither framed pictures nor color sildes are acceptable. Prints that have been previously published commercially will not be acceptable. All pictures submitted must be taken with flashbulbs.

3. Photographs should be sent to: Sylvania Photofiash Contest, Post Office Box 1686, New York 46, New York.

All entries must be photographed no later than March 15, 1959, postmarked on or before March 31, 1959, and received by April 10, 1959.

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6. You may enter as often as you wish, but each picture must be accompanied by (1) the trademark from the outer wrapper of a sleeve of Sylvania Blue Dot Flashbulbs, and (2) official entry blank, or typewritten or printed copy thereof, attached to the back of the photograph.

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the LARGE CAMERA

by ANDREAS FEININGER

Staff Photographer for Life Magazine

Check the accuracy of your shutter speeds with this simple test.



It is a well-known fact that no ordinary shutter is accurate at all speed settings, but even worse, few shutters are accurate at any setting. While such common inaccuracies are usually harmless

in black-and-white photography, where the exposure latitude of the negative material takes care of the resulting over or underexposure, in color photography, where exposure latitude is smaller and the error-equalizing step of the negative normally does not exist, an inaccurate shutter can make the difference between a perfect and a mediocre color transparency.

Actually, a shutter that is "off" at some (or all) settings is no calamity provided that its inaccuracies are consistent (i.e., not erratic as in gummed-up and dirty shutters) and that the actual shutter times (as contrasted to the listed shutter times) are known to the photographer. Because of this, professional color photographers, who cannot afford to miss, check their shutters from time to time and have them calibrated in terms of "actual" speeds. And amateurs who like their color shots "just right" should do the same.

How much even high-quality shutters can be "off" can be seen from the following comparison figures which I got recently when checking one of my own Compur shutters: Listed speeds: 1/250, 1/100, 1/50, 1/25, 1/10, 1/5, 1/2, 1 sec. Actual speeds: 1/130, 1/85, 1/50, 1/32, 1/15, 1/8, 0.6, 1.4 sec.

A simple shutter testing device

The best way to check the timing of one's shutters is to have them tested by a good camera repair man who has the necessary precision instruments. However, photographers who are not in the fortunate position of having such a godsend within easy reach can run their own shutter tests with the aid of an ordinary phonograph, as described

below. Although this test becomes increasingly less accurate with increasingly higher shutter speeds, it is quite reliable in the longer ranges from one-half to 1/25 second-just the range that is used most often in conjunction with large-camera color photography outdoors.

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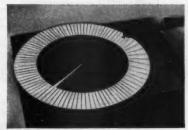
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Take a look at the illustration. It shows the turntable of an ordinary radio-phonograph surrounded by a stationary, white paper ring divided into 100 segments of equal width. Attached to the turntable, and rotating with it, is a white paper pointer, the outside width of which is equal to the width of one segment. The only requirement which the phonograph must fulfill is that its turntable revolves at exactly 78 rpm.



Shutter speed can be calculated by counting segments swept by pointer on paper ring. See text for details.

To make this device, draw two concentric circles on a sheet of stiff, white drafting paper. Make the inner circle approximately 1/4 inch larger in diameter than the diameter of the turntable, the outer circle approximately 11/2 inches larger than the inner one. Divide this paper ring into 100 segments of equal width. (First divide the circle into four quarters, then measure the circumference of one quarter with a tape measure. Use a compass to divide each quarter, along the circumference, into 25 equal segments.)

Cut out the calibrated ring and mount it on the phonograph, around the turntable, supporting it with bits of wood so that it is flush with the level of the turntable. Cut the pointer from stiff white paper and attach it to the turntable. Finally, illuminate the device with a couple of photofloods and, while the table is turning at 78 rpm, photograph it with different shutter speeds from directly above.

(Continued on page 90)

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The new Spiratone Two-Polket Genuine Top-grain Pigskin bags are really what you wanted: they have handy wanp-around zigpers, edical-able straps with shoulderspets, zigpersed filter pocket inside cover, chrome hardware, trigod loiders on the bottom and two outside pockets for easy separation of accessories. And the prices are lower than those of plastic bags!

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PICTURES in a MINUTE

by JOHN WOLBARST

New timer, new flash extension. And, how about making a picture postcard in a minute?



About the only time I ever carry a watch is when I'm using my Polaroid Land camera, and then all I need is the second hand to time development. Obviously, a good timer for the Po-

laroid has been a long overdue item, and finally there is one. It's a little fellow that screws right onto the tripod socket of your camera, as shown below. The Polaroid timer will give a reasonably accurate count up to 120 seconds. There's an audible but not unpleasant buzz while it's running, and a sudden quiet indicates the end of the time. Since it doesn't ring a bell or fire off a rocket to remind you that the picture must be removed from the camera, it's necessary to keep an eye or an ear peeled. I've been using one now for several months and find it a handy, reliable item. The timer is made in Japan and distributed here by Polaroid Corp. Price, \$5.95.

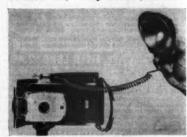


THE TIMER: To set it, turn the hand to the desired time (60 seconds, here). To start it, press the little button.

I shoot a lot of flash pictures with my Polaroid camera and get nice results with the standard flashgun and the bounce flash bracket. However, there are times when I find that the fixed position of the flashgun limits me, particularly for portraits or for ultraclose-ups of small objects.

Recently I was delighted to find a little accessory that solves the problem neatly. It's a coiled extension cord which has at each end a novel double connection—the bottom has a foot that fits into the accessory shoe of the camera, while the top part is itself a shoe to accept the foot on the bottom of the Polaroid flashgun. The two photos show how it works. This Accura coiled

cord is made in Japan, costs \$3.95 at your photo dealer. In case he doesn't know about it, the extension is being marketed by Accura Industries, 67 Forest Road, Valley Stream, N. Y.



FLASH EXTENSION: With one end attached to the camera's flash connection, and the other end to the gun (above) light can be aimed in any direction. The two connections clip together and the flashgun can be used on top of them, if desired (below). This unit is only for cameras with the flash connection on the body.



About a year ago Polaroid Corp. launched a wonderful idea which somehow or other failed to get much publicity, so not many people know about it. I'm referring to Polaroid Postcarders. These are about the size of the larger Polaroid prints. One side has space for a message and address. The other side carries a protective cover over a sticky surface. You write your message, address the card and then strip off the protective layer and press a Polaroid print down onto it. Presto, there's your own private postcard.

I've sent some of these from Europe and have received some from various places. They're really great fun. Ordinarily they cost 95 cents for 25 Postcarders. However, just for fun I'll be glad to send you three, free of charge. Please send me a plain U.S. postcard, c/o MODERN PHOTOGRAPHY, 33 West 60 St., New York 23, N. Y. On the back write only your name and address and the single word Postcarders. Nothing else, please—just Postcarders on a postcard with your name and address.

The supply is limited, so this offer ends March 30.—THE END

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35 M

JOHN WOLBARST

Coming soon: A zoom lens for your 35mm single-lens reflex camera!

"Zoom lenses of high quality for still cameras will be available within a few months."

I'm quoting Dr. Frank G. Back, President of Zoomar, Inc., manufacturers of zoom lenses for cinema and TV use, and probably the world's leading authority on variable focal length zoom-lenses.

His startling prediction was dropped casually in the course of a recent meeting of the New York Chapter of the Society of Photographic Scientists and Engineers in the Lounge of the Carnegie International Center on United Nations Plaza, New York. Dr. Back, who is also president of the chapter, was speaking on the "Past, Present and Future of Zoom Lenses" when he dropped his little zoomshell.

That was not the only surprise during Dr. Back's talk. When I arrived, I noticed that the audience included a considerable number of well-dressed ladies of various ages and sizes, but I figured that some of the members must have brought their wives along. After Dr. Back had been speaking for a few minutes a gentleman appeared in the back of the lounge and in a foreign accent loudly asked: "Are there any ladies here for the United Nations meeting?" There were. But let's get back to lenses.

Anyone who has watched TV or had his eyeballs stretched as the zoom lens of the newsreel camera picks out a sprinting footballer, must have wondered about using such a lens on a still camera. As a matter of fact, it was first tried almost 100 years ago, but until recently zoom lenses were notoriously unsuccessful.

The reason why not

The principle seems quite simple. If you move a couple of separately spaced lens elements nearer to each other, or spread them further apart, there will be pronounced changes in the size of the image that the lens elements form. However, the changes are highly unpredictable. In the past many designs were worked out for lens systems to produce a predictable change in image size with a known movement of the lens elements. But there was one final and stubbornly unsolved problem.

As the size of the image changed, there was an accompanying shift in the location of the image. That is, the focal plane kept shifting as the image size changed. Therefore it was necessary to have elaborate mechanical linkages to compensate for this shift in focal plane. And aside from their bulk and cost, such mechanical compensating systems always managed to get out of adjustment with use and

In 1946 Dr. Back came up with a new type of focal plane compensating system-this was based on an optical. instead of mechanical, correction for the image shift. Since that time the Zoomar lenses have been steadily improved and in TV and movie work they are accepted as giving results which, in quality, are virtually indistinguishable from those achieved with cine lenses of a single focal length. But even that was not good enough for still camera work.

In TV or movies the image is moving and the eye accepts a much lower standard of overall sharpness than is acceptable when viewing an enlargement or a projected slide.

How then has it suddenly become possible to produce a zoom lens "of high quality for still cameras?"

The new lens techniques

According to Dr. Back, the improvement comes from new mathematical concepts, the employment of electronic computers which in a couple of weeks can solve a series of calculations that formerly would have occupied several expert humans for years, and the use of important new types of optical glasses. By combining all these elements it has been possible to produce zoom lenses in which the focal plane shift is less than the calculated depth of focus of the lens. That is, the image still shifts slightly, but not enough to cause the picture to go out of focus.

Dr. Back didn't say where or by whom the zoom lens would be made. but it seems likely that he would have some important connection with the

production of the lens.

Zoom lenses for TV and professional movies are formidable, enormous, and highly expensive affairs with a zoom range as high as 6:1. I can't picture one on an amateur 35mm camera. However, let's suppose we were willing to accept more modest performance-a zoom range of 21/2:1 or 3:1, such as is found on some amateur movie zoom lenses. Let's assume that the short end of the scale might be the very popular 35mm semi-wide-angle focal length. A 21/2:1 zoom would afford a maximum focal length of 87.5mm, while a 3:1 range would go up to 105mm. It's my belief that either range would more than satisfy 95 per-

(Continued on page 110)

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NEW products

Two More Revere Automatics



Two additions to the Revere line of automatic 8mm of automatic 8mm movie cameras are quite similar to previous models — except that they do not have the manual control feature. Operation of the new roll film CA-5 and roll film CA-5 and magazine CA-6, is

roll film CA-5 and magazine CA-6, is completely automatic. The lens opening is adjusted by energy transmitted from the photoelectric cell on the camera to the diaphragm. As the camera pans from a dark to a light area, or from light to dark, the diaphragm opens and closes for correct exposure on Kodachrome. Inside the finder, an Optic-Scale shows the change in f-numbers and indicates when there is insufficient light for good results. The cameras are equipped with an f/1.8 normal lens and tele and wide-angle converters on a turret. Other features are: daylight and tungsten film settings, hinged door, door lock, footage counter, parallax adjustment from 3 ft. to infinity, continuous run lock and single frame exposure, and chrome and leather trim. Price of CA-5 snool film gle frame exposure, and chrome and leather trim. Price of CA-5 spool film loading unit is \$149.50. Price of the CA-6 magazine camera is \$179.50. Write:

REVERE CAMERA CO. 320 E. 21 ST., CHICAGO 16, ILL.

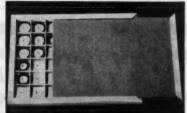
Two Tele Lenses for Praktina FX

Two new Steinheil Quinar telephoto lenses—a 135mm f/2.8 and a 200mm f/4.5—have been announced for the Praktina FX 35mm eye-level reflex camera. The preset Steinheil Quinar 135mm is of 5-element design and has an angle of view of 15.2°. Image magnification, compared to a 50mm lens, is 2.7X. The mount, finished in brushed aluminum, has a depth of field scale. The Steinheil Quinar 200mm is also of 5-element design with a brushed aluminum mount and preset operation. Both lenses are available in screw mounts for Praktina FX2 and FX3 cameras, as well as others with similar

cameras, as well as others with similar mounts. Price of the Steinheil Quinar 135mm f/2.8 and the 200mm f/4.5 is \$149.50 each. Write: STANDARD CAMERA CORP.

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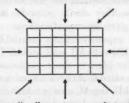
The B-8L Compumatic is the world's only electric eye camera that measures light through the lens. Most electric eye cameras measure general light in front of you. Any bright light off-scene can fool them into underexposing your movies. But not the Compumatic, which measures only the light from the exact area the lens sees. (A lens can't see off-scene light.)

New effects, too. The B-8L Compumatic gives perfect exposures through any lens, not just one. (Including extreme close-ups—impossible with other electric eye cameras.) It works with all color and black and white film from 10 to 80 A.S.A., not just one. When faster films are made, the Compumatic eye will work with them! Seven different speeds, too—not just one!

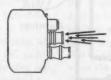
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ELECTRONIC FLASH

CAN YOU TRUST MANUFACTURER'S GUIDE NUMBERS?

DO RECHARGEABLE UNITS RECHARGE COMPLETELY?

ARE FLASHLIGHT BATTERIES POWERFUL ENOUGH?

DO TRANSISTORS REALLY MAKE ANY DIFFERENCE?

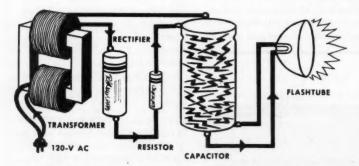
by Charles Hellman

THE CONSTRUCTION of even the simplest electronic flash units is enough to frighten the bravest of men. A maze of rectangular shapes—long and short tubes, round pill-box affairs, lie hopelessly tangled in a bed of blue, green, purple and pink insulating wire. When things are working right, the batteries are alive, the connecting cord is attached to the camera properly, and the flash tube at the far end of the affair will give off a brilliant flash of light.

Actually, in the case of electronic flash, ignorance is far from bliss. You can get stung (not, we hope, electrically) with inferior units, the wrong units, the wrong exposures and consequently bad pictures, if you don't get a rudimentary training in electronic flash basics. Actually, you don't need an electrical engineer's degree to tell the electronic flash sheep from the goats. A bit of common sense plus some basic information is about all that's needed.

Before we get involved in the actual units and discuss watt-second output, guide numbers and flashing ready lamps, let's look at the various types of units and see how they differ. You'd be surprised how many professionals buy the wrong units because they don't properly interpret data given by manufacturers.

The least expensive units available plug into a 120-volt AC wall socket. If you don't ever plan to shoot electronic flash pictures outside an area where current is available, the AC unit is relatively foolproof (diagram 1, at left). Here's how it works: The unit draws 120 volts AC from the house current. But the 120 volts is not really enough "umph" to deliver a brilliant high illumination flash, so a transformer changes it to 500 or more volts. Since AC can't normally be



1. AC UNIT is compact, light, budget-priced and inexpensive to run. House current (120-volt AC) is boosted to 500 or more volts by transformer. Rectifier changes it to DC, which goes to the capacitor where it's kept until discharged through the flash tube as light. The resistor is a safety valve—it limits rate of current which flows from power source to the capacitor. If it flows too fast, damage may result.

used to set off an electronic flash unit, a rectifier changes the current from AC to DC. Then the current is sent to a capacitor storage tank where the energy remains until you press the shutter release. The sync contacts close and the stored juice is discharged in the gas-filled flash tube some millionths of a second later.

If you're wondering what the small resistor is doing in the diagram, here's its function: it's a safety valve. If the current is allowed to flow out of the power source (battery) too quickly, it can become overloaded and its life will be shorter than if the rate of current were slowed down by a resistor strategically placed.

Incidentally, when we say these units are of the least expensive type, we mean relatively inexpensive when compared to battery units of comparable power. Some house-current-only units used by professionals cost hundreds of thousands of dollars and can more than light the stage of Radio City Music Hall.

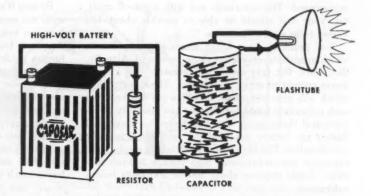
Many semi-professionals and professionals, who do a lot of flash work and want a compact, dependable, portable unit, don't need a speed light which plugs into an outlet. They prefer a high voltage battery unit (diagram 2, above). In construction, the high voltage unit (often two 240-volt batteries) is the simplest. You have a high voltage DC source so you don't need a transformer as in the AC unit. You need no rectifier to change the current into DC. And since you're dealing with a high voltage source, the capacitor is filled almost instantly after a flash discharge so you can shoot the next picture a few seconds after the first.

That old hitching post: money

Now the hitch. A set of batteries, good for 500 or so flashes, costs about \$15—or three cents per shot. The batteries are good for only about six months. If you shoot pictures only occasionally, this type of unit can turn into an expensive \$30 a year upkeep.

Let's poke on now to the more popular units, those having D-cell type batteries, nickel cadmium batteries, rechargers and the like.

The ordinary D-cell is probably the cheapest type of low voltage power supply. The low voltage DC must first be converted to AC because it's difficult to step up DC to a higher voltage. The DC is often converted to AC by a transistor circuit which can be far more efficient than the old humming vibrators. (Some of the newer vibrators are just about as efficient). Because of the efficiency increase, the size of the transformer itself is now much smaller than previously. That's why some of the modern units are so amazingly tiny. In addition, the transistor extends the life of the D-cell to at least



2. HIGH VOLTAGE BATTERY POWERED UNIT is dependable, longlasting and fast recycling. Since the voltage is about 500 volts to start with, the battery is connected directly to the capacitor (storage tank) via the safety valve resistor. Most professionals use this type of power source for their portable units. The battery's dependability and fairly long life are ideal for professionals. Only drawback—cost to replace the batteries is about \$15.

twice its former life using a vibrator. After the transformer, its the same old story. The voltage is stepped up to 500 volts, transformed back to DC and stored in a capacitor. We'll get into the number of flashes you should expect per battery set later. But first let's discuss the very latest and most elaborate type of unit currently available—the rechargeable transistor monitor circuit (diagram 4 page 51).

Let's look at the battery first. In the drawing we've made it one of the new nickel cadmium units although it actually could be any one of a number of different power supplies including the old familiar D-cell. The unit itself works in quite a similar manner to the D-cell units (diagram 3, page 50) with two exceptions. It employs a monitor transistor which switches off the unit when it becomes fully charged, thereby avoiding current leakage, and it has a recharging circuit and transformer which takes AC, lowers its voltage, sends it to the charging rectifier which makes it DC and recharges the portable batteries. The same circuit permits the unit to work directly on AC. This is the unit often described as having "an automatic power cut-off which saves your batteries." Absolutely right. The monitor switch which cuts down or shuts off the charging current when the capacitor is full and turns it on again when the capacitor falls below useful capacity may double or even triple the life of your batteries and may double or triple the number of flashes you can expect from one charge of a rechargeable unit, or one set of non-rechargeable batteries. Obviously, the initial expense may be greater in purchasing the unit but you'll save battery money in the long run.

Now let's talk about batteries. A standard set of four

or six D-cells in the least expensive units (no monitor transistor cut off) will provide 30 or 40 flashes before replacement. Transistorized, and with a cut-off monitor, your unit should be able to provide about 120 flashes from a set of batteries.

You probably have heard about the new D-cells which manufacturers claim can be recharged. Actually, they can't. But they can be rejuvenated with a small house current powered rejuvenator. These batteries—which will give you about 60 shots per rejuvenation with a standard transistor circuit—can generally be rejuvenated three times. You can figure on about 120 flashes per battery provided the unit has a monitor cut-off switch. The high voltage unit which employs the expensive non-rechargeable high voltage 240-volt batteries should produce about 400 or 500 shots before exhaustion.

Now we get to the newest power source, the nickel cadmium rechargeable battery which has all but replaced the wet-cell lead storage battery (diagram 4, page 51). Although the nickel cadmium is more expensive it has a virtually limitless life expectancy and can be recharged and recharged and recharged. The nickel cadmium battery action is quite similar to that in a lead storage battery with a few exceptions. The positive electrode is nickel, the negative, cadmium. The fluid-instead of being acid-is an alkali, usually potassium hydroxide. The nickel cadmium battery holds a charge longer than the old lead storage battery, it is lighter in weight, smaller in size. Most of the nickel cads in use are sealed so you needn't add liquid as in the old lead cells. Some of the unsealed units in the more professional units have vents which carry off the gases generated during recharging. This speeds up the recharging process. It's hard to put your finger on the exact number of flashes you can get from a nickel cadimum battery since they do vary in size, power and weight. However in a small non-transistorized automatic cut-off unit about 40 flashes is par-while a transistorized cut-off unit should provide twice that number before recharging.

By now it's probably occurred to you that some flash units are more powerful than others. The question is: how can you compare the power from one unit with the power from another? The manufacturers generally furnish guide numbers for various films. If there were a standard method by which all manufacturers computed guide numbers, they would perhaps give the user the best practical way of judging units. But the methods by which manufacturers reach the guide numbers vary so widely that guide number claims are not fair tests of the units.

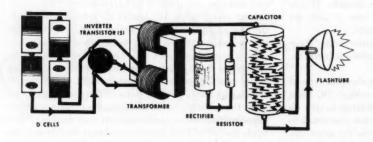
In the past, some manufacturers have attempted to rate their units in watt-second capacity. Again, this leaves much to be desired since the watt-second rating of any unit is actually a measure of stored electrical energy—potential energy—but it does not indicate the actual amount of illumination produced. However, the watt-second capacity is an approximate indication of possible light output. Most small units produce somewhere between 25 and 60 watt-seconds.

The best rating system so far devised isn't standard yet—Effective Candle Power Seconds (ECPS), which is the average effective light output of a flash tube-reflector combination. To give you some idea of the figures, a well-known 100 watt-second electronic flash unit is rated at 3500 ECPS. However, after making a careful check of watt-second capacity and ECPS of other units you'll soon see that a 50 watt-second unit may not yield one half the ECPS of a 100 watt-second unit. Until ECPS or some other rating method becomes standard, we'll have to test the guide number claims furnished by the manufacturer.

Although most guide numbers are optimistic, some manufacturers are quite truthful. Only an actual test of the units will tell. Load your camera preferably with Kodachrome, or another slow color film if using a film size larger than 35mm. Place a subject in an average

situation which you normally would use with the camera at home and shoot a roll of film following the manufacturer's guide numbers. Also make some shots using a slightly higher and lower set of guide numbers. Be sure to include some identifying mark in each picture so you can tell them apart later. After processing, pick out the most pleasing exposure and then note which guide number was used. We suggest color film since it has the least exposure latitude of all films in general use and will instantly show whether a guide number is optimistic.

A word of caution about guide numbers: as you know they furnish you the proper direct flash



3. LOW VOLTAGE, TRANSISTORIZED UNITS are inexpensive to buy and run. The transistor circuit more than doubles the useful life of the D-cells. The transistor converts DC to AC so it can be boosted up to about the necessary 500 volts by the transformer. The rectifier changes it back to DC and the capacitor stores it until discharged.

lens opening when you divide the distance between flash and subject into the guide number. The guide number, based on the physical law that light diminishes inversely as the square of the distance, works nicely at most camera-to-subject distances. It would work at all distances if it weren't for the reflector which concentrates the beam on the subject. Because the reflector was designed for average subject distances, a direct use of the guide number when shooting close-ups, at a flash-tosubject distance of three or less feet will give you an underexposed negative-while flash at twenty feet or more may produce overexposure if the guide number is followed. If you plan to shoot at extreme distances, better make your own test guide numbers first.

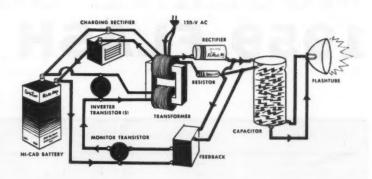
Before we leave the subject of flash reflectors, don't forget that flash

reflectors are designed roughly to duplicate the angle of acceptance of a normal 45 to 58mm lens. If you use a wide-angle lens, you'll need a broader flash beam (which consequently will furnish a lower guide number than a standard beam) to cover your picture area. Some of the newest units have adjustable flash reflectors. Anyone having an interchangeable lens camera should look into them.

That flashing light

For one last notation on the complex business of electronic flash, let's discuss a popular misconception about the flashing or non-flashing light on almost all electronic units which supposedly tells you that the unit is fully charged and ready to fire. The time between the moment when you use a flash and the moment the batteries have again refilled the capacitor sufficiently for a second flash (roughly 90 percent of capacity) is caused by recycling time. Why fill the capacitor to only 90 percent capacity? Because it actually takes five times longer to get the capacitors from 90 to 100 percent than it does to go from 0 to 90 percent. Recycling time would be far too long if we waited for 100 percent capacity. The neon indicator lights are usually designed to flash on when the unit is only 60 to 70 percent charged. If you try to take a picture at the exact instant the ready light appears, you may seriously underexpose your film, particularly if it's color which has little exposure latitude anyhow. At 65 percent of capacity, your unit can deliver only about 2/3 power.

There are two types of indicator lights. One stays on continually until the unit is fired. The other pulsates, going on and off slowly when the unit is 70 percent charged. As the charge builds up to 100 percent, the pulses quicken, the light goes on and off more swiftly.



4. TRANSISTORIZED MONITOR CUT-OFF is most desirable. This unit has all the features of the ordinary transistorized unit and then some. The ordinary transistorized circuit doubles the amount of flashes per set of batteries. However, add the monitor cut-off and you get more than twice that many flashes. When the capacitor is filled with current, the monitor circuit cuts off or reduces the battery drain between flashes, minimizing amount of time battery is in actual use.

At extremely rapid flashing, you've reached 90 percent of capacity or better. Obviously, you should take the recycling times as indicated by the neon lights with a grain of salt. Allow half again the indicated recycling time before you shoot if you have a continuous indicator, or wait for those fast pulses if you have the other type.

And the future?

There's plenty more that can be said about electronic flash. However, we've covered the most important aspects. If our figures on recycling times, and number of flashes per set of batteries or per battery charge are low when compared with the manufacturers' claims, remember that the makers generally test under optimum conditions—flashing when the ready lights appear—using super fresh batteries. Our figures were arrived at in a more leisurely manner—as you would use the unit yourself—storing the batteries on the shelf in the units, letting the ready light shine for many seconds to a few minutes before flashing. After all, theory is just fine. It's the practice that counts.

Perhaps you're wondering just where electronic flash is going from here. Should you buy what's available or will a few months bring entirely new types of units which will make present ones obsolete. It's safe to say that no big changes are being planned for the near future. Certainly, the new units will be smaller, when they arrive, and per pound of carrying equipment, they will be more powerful. Today's unit, however, represents a good investment which will be right in style for five or more years in the future. If and when new and more efficient batteries are invented, they will undoubtedly fit many of the units which are currently on the market.—THE END

MODERN'S GUIDE TO 1959 FLASH UNITS

NAME	POWER SOURCE	GUIDE NO.	NOTES _
Add-A-Flash Speed- Hre 100	AC, high valt dry	35 Kod., 55 Anse.	60 watt-sec., 2 sec. recyc., acces. shoe or bracket mat., \$59.95
Add-A-Flesh Speed-	AC, wet cell, nicad.	48 Kod., 80 Ansc.	100 watt-sec., & sec. recyc., acces. shee or bracket mnh., \$59.95
Add-A-Flash Twinifte Speedlite 110	AC, high volt dry cell	48 Kod., 80 Ansc.	100 watt-sec., 6-8 sec. recyc., acces, shoe or bracket mnt., \$84.95.
Add-A-Flash Twinfite Speedlite 120	AC, well cell, mlcod.	48 Kod., 80 Ansc.	100 watt-sec., 6 sec. recyc., acces. shop or bracket mnt., \$89.95
Amgie Champion 60A	AC, high volt dry cell	40 Kod., 55 Ansc.	8 sec. recyc., bracket mnt., tilting flash head, \$69.95
Astra Lite	AC	35 Kod., 50 Ansc.	25 watt-sec., 3 sec. recyc., acces. shae mnt., \$17.85
Astra Studio	AC AC	65 Kod., 90 Ansc.	.230 watt-sec., 5 sec. recyc., 180° tilting Rash head, \$99.95
Braun Hobby Special EF 2	AC, barium, transistorized	44 Kod., 70 Ansc.	70 watt-sec., 5-7 sec. recyc., acces. shoe or bracket mnt., \$79.50
Braun Hobby Standard EF 1	AC, barium	36 Kod., 60	50 watt-sec., 5-7 sec. recyc., acces, shee mnt., \$59.50
Dormitzer 60	AC, ni-cud., transistorized	50 Kod., 70 Ansc.	5-7 sec. recyc., acces. shoe mnl., \$99.50
Exekta Electronic Flash Unit	AC, 3 D cells, nicad.	30 Kod., 45 Ansc.	40 watt-sec., 2-8 sec. recyc., acces. shae mnt., \$44.95
FR Model 2	AC, 4 D cells	40 Kod., 65 Ansc.	50 west-sec., 10-12 sec. recyc., acces, shoe mnt., \$54.9.
FR Swivel Head 150	AC, 4 D cells	30 Kod., 50 Ansc.	30 watt-sec., 8-10 sec. recyc., acces, shoe or bracket mnt., Hiting flash head, \$49.95
Puturumic Stroboner	AC, 3 D cells, nicad, transistorized	35 Kod., 65 Ansc.	40 watt-sec., 12 sec. recyc., bracket mnt., \$59.95
Limelight 60	AC, high volt dry cell	60 Kod., 110 Ansc.	100 watt-sec., 5-7 recyc., bracket mnt., \$79.95
Mecablity 101	AC, 4 D cells, transistorized	33 Kod., 46 Ansc.	10-15 sec. recyc., bracket mnt., \$54.95
Mecabilitz 200	AC, 6 D cells, transistorized	39 Kod., 46 Ansc.	8-12 sec. recyc., bracket mnt., \$69.95
Mecability 500	AC, wet cell	46 Kod., 70 Ansc.	120 walt-sec., 6-12 sec, recyc., bracket mnt., \$89.95
Mighty Light	AC, 4 D cells, high volt dry cell, nicad.	30 Kod., 56 Ansc.	1-12 sec. recyc., bracket wat, tilting flash head, \$62.95 to \$84.65
Mighty Light AC	AC, high volt dry cell, alcad.	30 Kod., 56 Ansc.	10 sec. recyc., bracket mni., tilting flash head, \$48.95
Mighty Light Deluxe	AC, 4 D cells, nicad.	45 Kod., 60 Ansc.	2-15 sec. recyc., bracket mnt., \$63,95 to \$87.95
Minicam 80	AC, 4 D cells, wet cell	40 Kod., 55 Ansc.	80 wait-sec., 3-8 sec. recyc., acces. shoe mnt., \$59.95
Minicam ST50	AC, 4 D cells, wet cell, transistorized	25 Kod., 35 Ansc.	50 watt-sec., 6-10 sec. recyc., occas, shoe mnt., \$49.9

YOU CAN'T TELL today's electronic flash units apart without a scorecard. Well, here's Modern's scorecard, compiled by Norman Rothschild, of all units under \$100. You'll find the brand names, the type of power supply, the approximate guide numbers for black-and-white and color films (as supplied by the manufacturers) and other pertinent data. The Kod. designation refers to Kodachrome, Daylight Type, while the Ansc. is an abbreviation for Daylight Anscochrome (not Super Anscochrome). We haven't given the Kelvin tempera-

tures of the light, although the manufacturers print such information. We've found that the light source of all the units approximates that of daylight but that varying reflector colors and other factors can alter the temperature. Thus, the light from one unit may be slightly different, in effect, than the light from another. The differences, however, are negligible.

To get the most from this chart we'd suggest you read Charles Hellman's report and advice on the various types of electronic flash units. It begins on page 48.

NAME	POWER SOURCE	GUIDE NO.	NOTES
Minicam TT100	AC or 6 D cells, transistorized	50 Kod., 70 Ansc.	100 watt-sec., 6-10 sec. recyc., acces. shoe mnt., \$79.95
Minitron 60	AC	35 Kod., 55 Ansc.	60 watt-sec., 6 sec. recyc., \$59.95
Multibility Color IIA	AC, 4 D cells, wet cell	50 Kod., 65 Ansc.	130 watt-sec., 8 to 14 sec. recyc., bracket mnt., \$99.50
Multiblitz Color SL	AC, dry cell, transistorized	36 Kod., 52 Ansc.	65 watt-sec., bracket mnt., \$59.95
Rectablitz	AC, 3 D cells	20 Kod., 35 Ansc.	50 watt-sec., 1-12 sec. recyc., acces, shoe mnt., \$69.90
Redi-Lite	AC, 4 D cells	27 Kod., 40 Ansc.	40 watt-sec., 2-8 sec. recyc., bracket mnt., \$29.95
Ricok-Lite	AC, 3 D cells	30 Kod., 50 Ansc.	40 watt-sec., 1-8 sec. recyc., acces, shae mnt., \$49.95
Skylight	AC, high volt dry cell	40 Kod., 70 Ansc.	70 watt-sec., 6 sec. recyc., acces, shoe mni., \$29.95
Stroboflash 1	AC, high volt dry cell, ni,-cad.	27 Kod., 49 Ansc.	50 watt-sec., 3 set. recyc., acces, shoe or bracket mnt., \$89
Strobofiash II	AC, high volt dry celi, nicad.	38 Kod., 68 Ansc.	100 watt-sec., 3 sec. recyc., acces, shoe or bracket mnt., \$99.50
Strobomite	AC, 4 D cells	30 Kod., 56 Ansc.	.50 watt-sec., 8-10 sec. recyc., acces, shoe mnt., \$64.50
Strobonar 62A	AC, 4 D cells, nicad.	35 Kod., 65 Ansc.	40 watt-sec., 12 sec. recyc., acces, shoe mnt., \$59.95
Strobonar 628	AC, 4 D cells, nicad.	35 Kod., 65 Ansc.	40 watt-sec., 12 sec. recyc., bracket mnt., \$64.95
Strobener 63A & B	AC, high volt dry cell	35 Kad., 65 Ansc.	40 wall-tec., 3 sec. recyc., bracket mnt., \$63.35 (63A). \$83.55 (63B)
Sun-Lite 110	AC	35 Kod., 60 Ansc.	50 wall-sec., 4-5 sec. recyc., bracket mnt., \$62,50
Sun-Lite 225	High volt dry cell	35 Kod., 60 Ansc.	50 watt-sec., 4-6 sec. recyc., bracket mnt., \$79,50
Sun-Lite 500	High volt dry cell	25 Kod., 40 Ansc.	26 watt-sec., 3-5 sec. recyc., bracket mnt., \$44.50
Sun-Lite 700	AC, 4 D cells	40 Kod., 70 Ansc.	58 wait-sec., 8-12 sec. recyc., bracket mnt., \$54.95
Sun-Life 700 Delume	AC, 4 D cells, ni. cad.	40 Kod., 70. Ansc.	58 walt-sec., 8-12 sec. recyc., bracket mnt., \$69,95
Sen-Lite 1000	AC, nicad., transistorized	30 Kod., 40 Ansc.	27 watt-sec., 5-10 sec. recyc., bracket mnt., \$79.95
Ultrabilitz Meteor	AC, nicod.	56 Kod., 80 Ansc.	100 walt-sec., 31/2-7 sec. recyc., bracket mnt., \$99.50
Ultrabiltz Super Comet	AC, alcod.	32 Kod., 52 Ansc.	40 watt-sec., 8 sec. recyc., acces, shae mat., \$54.95
Vonguerd 201	AC, sicod.	30 Kod., 40 Ansc.	30 watt-sec., 1-15 sec. recyc., brocket mnt., \$34,95
Vanguard 401	AC, nicad.	30 Ked., 50 Ansc.	30 walf-sec., 1-12 recyc., bracket mni., \$79,50

MODERN'S GUIDE TO BOUNCE FLASH



1. CEILING BOUNCING: This is the traditional bounce. By pointing the reflector at the ceiling half way between camera and subject you get overall illumination plus shadow delineation (eyes, cheek bones, under chin).



2. CEILING BOUNCE ABOVE CAMERA: If you want even illumination similar to (1) with fewer shadows under chin, in eyes and cheek lines, bounce light at the ceiling above the camera or just in front. Good technique for high key.



5. BOUNCE OFF FLOOR: Don't try this if you have a dark rug. If the floor's of a light reflecting material (roll back the rug and use the wood underneath), floor bounce will produce the same dramatic results as footlights do.



6. CEILING BOUNCE BEHIND CAMERA: Perhaps you're looking for a really soft, shadowless, bounce light. Point your reflector at the ceiling behind camera. The total illumination will be low, but the light will be soft.

Do you use bounce flash or electronic flash most effectively? Peter Gowland, an old hand at it, demonstrates eight completely different methods of employing a bounce light from a single bulb or speed-light unit.

Choose the proper technique for your own subject and mood.



3. CEILING BOUNCE ABOVE MODEL: Suppose you like bounce light but want really distinct shadows. By aiming the reflector above the subject you'll get them. Light will be more directional. Watch out for undesirable neck shadows.



4. CEILING BOUNCE BEHIND MODEL: Few photographers realize the possibilities electronic flash offers for dramatic silhouettes. If you have light walls, aim the reflector at the ceiling behind the subject—silhouette will result.

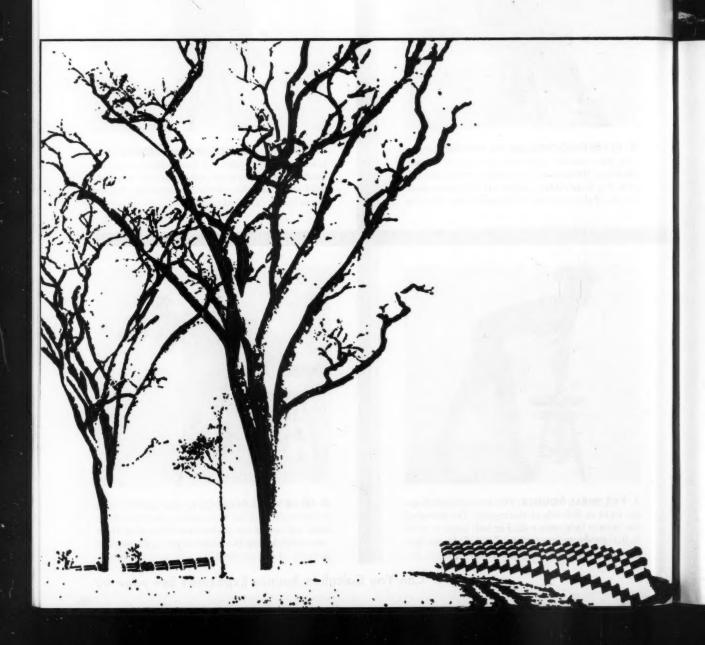


7. FAR WALL BOUNCE: Want a soft light from the right or left side of the model? Try directing the bounce light on a wall. Far wall bounce (over 6 ft.) produces interesting direct light on face yet lights entire figure adequately.



8. NEAR WALL BOUNCE: If your model is close to the wall used for the bounce (but not closer than 3 ft.), you can make some interesting directional high key shots which still retain the pleasant softness of bounce light.

NEW PICTURES FROM YOUR OLD NEGATIVES: EASY WITH KODALITH





Photos with large masses are good starting points.



Lines reproduce best with small enlarger lens openings.

SOONER OR LATER energetic, imaginative photographers find new ways other than intended by the manufacturer to use photographic materials—probably breaking a few rules in the process.

Susan Sherman's pictures on these and the following page break the rules. She used Kodak Kodalith Ortho 4 x 5 sheet film, Type 2, meant primarily for making line and halftone engravings for photochemical reproduction. You can get it on order at your photo shop.

Actually, Susan starts out to make her pictures like almost every other photographer—with a camera, panchromatic film and a subject. But to her even a normal black-and-white photograph is already an abstraction—something we learn to relate to reality by association. Why not carry the abstraction one step further and reduce the image to its barest elements—pure black-and-white?

First she selects a photograph with large masses of black and white. A picture that has interesting shapes and lines—perhaps a mixture of the delicate and strong.

Susan makes a high contrast diapositive on Kodalith Ortho from the normal negative. A diapositive is similar to a black-and-white transparency. Here's how it's done. She places the negative in a printing frame with the emulsion side up. A piece of Kodalith is placed over the negative with the emulsion side down. Four tests exposures follow, using the enlarger as a light source. The first one-second exposure is made on any part of the negative, masking of most of it. The mask is moved after each exposure until when the last one is made, the whole negative is revealed. The first part of the negative has a total exposure of four seconds and the last one second. The Kodalith is then developed for four minutes in D-11 at 68°. After the Kodalith film has been fixed and rinsed the (Continued on page 90)



Good cropping developed feeling of design and abstraction. See following page for details about how it is done.

Opposite page: strong lines counterpoint graceful ones and combine with ordered masses for nether world quality.

How Susan Sherman makes her Photographic Abstractions with Kodalith Film





Starting with negative of normal photo, above, diapositive is made with Kodalith Ortho Type 2 film. Kodalith and negative are sandwiched emulsion-to-emulsion.



Result is a diapositive image that looks much like a black-and-white slide. A good one, when viewed by transmitted light, shows same strong earmarks as a fine contact.



Sandwiching the diapositive and a fresh piece of Kodalith makes a negative. Areas where final print will be white should be opaque. Dark areas should be translucent.



Kodalith negative may show many pin holes that will print black. Use Kodak Red Opaque to touch them up. Window or retouching stand provides transmitted light.



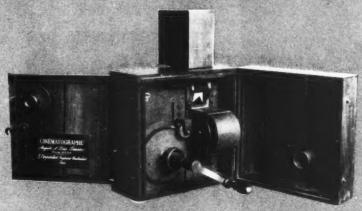
Retouching requires no great skill when working on Kodalith negative. Care must be taken when working close to translucent areas to avoid destroying separations.



Image can be reversed or cropped to achieve specific effect desired. To change image from right to left, simply turn negative over in enlarger carrier so emulsion is up.







One of the Lumiere brothers' first movie cameras.

THE LIGHTS WENT OUT & THE WOMEN SCREAMED

"MESDAMES ET MESSIEURS . . . Ladies and Gentlemen. . . Come, come come in and see the marvelous show of the Lumiere Brothers. . . Grand Opening, never seen before on earth . . . new animated photos . . . a truly prodigious show . . . admission one franc!"

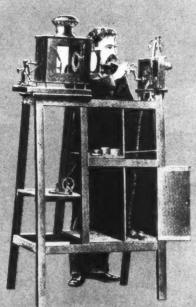
This was what the hustling Parisians heard when they passed by the Grand Cafe on the night of December 28, 1895. Some stopped and took the handbills that were being distributed. And the thirty-three who risked their franc were ushered into the basement of the Grand Cafe. They had the honor of witnessing the first motion picture show ever presented to the public.

They were somewhat sceptical when they found about a hundred chairs arranged in rows before the screen. Their scepticism turned into bewilderment when the hall was plunged suddenly into darkness. And, when a beam of light pierced the darkness from the rear, women screamed. The one-franc pleasure-scekers seemed to face destruction as a train—a real train with locomotive—bore down upon them from where the screen had been. Only when the train came to a halt was the spectators' poise regained.

It all took just one minute. Darkness again. And then another short movie, The Feeding of Baby, followed by more shorts. A man got up angrily: What was that all about? Sheer trickery! Nothing real! An illusionist's swindle, and he wanted his good money back! The proprietor of the Grand Cafe, Volponi, was called; he wrung his hands and tore his hair. He was to receive 20 percent of the receipts. But somehow the excite-

ment subsided and the first movie-goers, a bit dazed, filed out onto the Boulevard.

The initiators of the show were the Lumiere Brothers, Auguste and Louis. Their father, Antoine, the son of a blacksmith and ambitious to become a great painter, had come across a camera in 1860 when he was twenty years old. Photography was then still in its infancy, but the elder Lumiere was so intrigued by the new invention that he rejected painting for a career as a photographer



Film tumbles to bin in early projector.

and opened a studio at Besancon. But business did not come up to expectation, for when Auguste was born on October 19, 1862, the proud father had to borrow twenty francs from a neighbor to have the child baptized. Things took a turn for the better, though. When two years later, on October 5, 1864, Louis was born, Antoine ran a branch office in a neighboring town in addition to the original studio. Eventually, in 1870, the family moved to Lyons, where Antoine believed he would have a chance to expand his photographic business. Soon he took to manufacturing photographic supplies; above all he made the newly invented dry plates.

Some years later, young Louis distinguished himself as an innovator. He discovered and applied a new and extremely sensitive silver-bromide gelatin and made the Lumiere plates superior to those of competitors.

Auguste did not mean to enter the paternal business; he was going to be a biologist. Service in the army interrupted his studies, however, and when he came home his father took him aside. In the seclusion of a darkroom, Antoine confessed to his eldest son that he was broke. In spite of Louis' brilliant invention, the firm owed 200,000 francs, something of a fortune at the time. So, Auguste had to set biology aside and join the photographic business. He succeeded in persuading creditors to wait and reorganized the enterprise. He was so successful that soon the firm had 800 employees producing 100,000 plates annually. Both Auguste and Louis kept on busily improving their products.

(Continued on page 104)



Homer Page. Rear view, 1948.



Levinstein. Close-up of couple, 1955.

Avedon. Model and elephants, 1951.

Some questions:
Are commercial photos art?
Is print size important?
Is craftsmanship dying?
Should prints be collected?
Or should negatives?



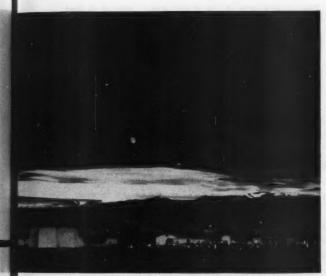
Garnett. Sand bars in Colorado River, 1955.



Tokutano Tanaka. Heron, since 1940.



REVIEW OF AN EXHIBIT: 500 PHOTOGRAPHS FROM THE COLLECTION OF THE MUSEUM OF MODERN ART



Ansel Adams. Moonrise, Hernandez, New Mexico, 1941.



Hine. Italian family, Ellis Island, 1905.

HAD EDWARD STEICHEN, THAT OLD FOX of a showman pulled it off after all? We revolved our way through the New York Museum of Modern Art's familiar revolving door, were admonished by a guard that our umbrella was a possible dangerous weapon and could not be taken into the museum exhibit floor (we checked it) and finally ran into an ocean of faces, mostly unfamiliar ones, busily and seriously studying one of the most daring collections of photographs ever assembled.

Most daring? Taking up all the wall space on the ground floor of the museum were photographs—big photographs (mural size), little photographs (postcard size), old photographs (1838), new photographs (1958), American photographs, Italian photographs, Japanese, German, Swedish photographs, black-and-white photographs, color photographs—500 prints from the museum's collection of 3000 made by 300 different photographers from 18 countries. This was perhaps the very first time any photographic director felt bold or confident enough to put on a full-scale, straight and unvarnished show from a museum's photo collection.

The use of the words "straight" and "unvarnished" is made with regret. Much as photographers may wish the centrary, art lovers and museum goers do not flock to, look at or buy photographs. In New York, for instance, there are some fifty art galleries devoted to painting and sculpture but not one, not one single photo gallery—unless you care to count a coffee house, Limelight, where customers, between sips of coffee and snibbets of pastry, are coaxed and cajoled into a small photo exhibit.

It didn't take the Modern Museum long to learn that a scattered grouping of really excellent photographs do not a museum full of paying visitors make. A glance at the titles of three of the past 70 photo exhibits held there since 1932 can illustrate how the nature of large photographic displays has changed: "Photography 1839-1937" (1937), "Road to Victory" (1942), "The Family of Man" (1955). Obviously, the "theme" has become strong and necessary. The theme is the editorial story idea, i.e., we are winning the war but it's a long hard struggle ("Road to (Continued on page 102)

M

EFANO ROBINO SOLVES PROBLEMS OF INDOOR COLO

Can a photographer use the same techniques and shoot the same subjects in color as he can in black-and-white? The notion that he can't has long been regarded as axiomatic. Several months ago we decided to see for ourselves, assigned Italian photographer Stefano Robino to photograph his family in color. We asked him to work with many films, several types of lighting; but to use the same simple techniques, and to try to achieve the same bold, graphic effects we have come to admire in his black-and-white work. (See MODERN, March and November 1958.) The photographs on these pages represent a few of the resulting transparencies.

Certainly, the biggest single reason for Robino's success is related to his general shooting technique. Unlike the dedicated candid camera user, Robino does not hesitate to set up shots. He has control of his models and of his lighting, a factor more important in color work than in black-andwhite since processing is standardized. Actually, Robino's shooting technique is more like that of a studio portrait photographer than of many journalists. His people are very obviously posed, or (as is the case here) at least placed within a highly restricted location. Lighting and exposure were planned in advance, and Robino was free to concentrate on composition and expression.

Some of the problems in shooting indoor color are identical to those encountered in black-andwhite work (example: choosing a film of the appropriate speed for the level of illumination). Others, such as color balance, the control of contrast, the effect of reflections from colored objects, are peculiar to color work.

If you are using a single light source, or if your light sources are identical (Robino worked either with window light or electronic flash), the problems of color balance are fairly easily solved. Three general types of color film are manufactured for amateurs: these are for use with daylight, with tungsten lights, and with clear flashbulbs. If the light you are using is one of these, simply choose the appropriate film; if not, there are filters available which will correct for differences between color balance of film and color temperature of illumination. Incidentally, (Continued on page 92)

CROSS LIGHT EMPHASIZES TEXTURE

in color as well as in black-and-white. Lighting for this photograph and for several of those on the following pages was two electronic flash units at right angles to subject. Crisp details, sharply defined shadows contrast with effect of similar, available window light photograph on the following page. Notice Robino's use of simple, colored backgrounds in all of these photographs. Confused backgrounds-in color work as in black-and-white-detract from the main subject, in this case would ruin bold, posterlike effect. Linhof 21/4 x 31/4, 105mm f/3.5 Xenar lens. Exposure was 1/100 second and f/11 on 120 Super Anscochrome film.



available window light may be bright enough for shooting—but don't expect maximum quality if your subjects are in motion. Even with Super Anscochrome (film speed 100) you'll probably have to use a relatively slow speed, wide aperture. Right, Robino exposed at 1/25 sec. and f/4. Soft, graduated shadow is characteristic of diffused light source.

be used indoors—if window light and electronic flash are your only light sources. The color temperature of illumination from most speed lights is approximately that of daylight; if not you can easily compensate by using a color correction filter. Error will probably be toward the blue. Best way to determine the proper filter is to test various strengths on a roll of film. Below, Robino used daylight Kodachrome, hand held Leica IIIf at 1/50 second and f/5.6.







EXPOSURE FOR CLOSE-UPS will be same as for distance shots—providing light source-to-subject distance is constant. Once correct exposure is established and the lighting position established, the photographer can vary his own camera to subject distance and angle. Actual arrangement of lights, general placement of subjects are the same in photograph above as in those on page 63 and bottom, page 64. Cameras, lenses, films, are different. Leica IIIf, 90mm Elmar lens, f/8 and 1/50 second.

IF LIGHTING CONTRAST exceeds latitude of color films, the photographer must compromise. Right, Robino reversed usual procedure and exposed for shadows, letting highlights burn out thus producing a high key transparency. Illumination is from two windows, in wall behind and to the sides of subject; exposure was f/4 and 1/25 sec. on Super Anscochrome film. Leica IIIf camera, 50mm f/2 Summitar lens.





CHARLES HARBUTT

IN JUNE, 1956, Charles Harbutt received a degree from the college of journalism at Marquette University. Later that month, *Jubilee*, a national magazine, hired him as a staff writer-photographer.

Without exception, the pictures on these pages show a knowledge of design, a solid understanding of techniques and controls of the medium and, as is true of many journalists, a highly developed sense of social responsibility. These are the attributes of a true professional. They do not mushroom overnight, nor, which is more to the point in the case of Harbutt, do they develop in the classroom.

Actually, when Harbutt was hired by Jubilee (he was then 20 years old) he had been working as a part-time professional for several years. The actual transition from amateur to professional status—as an editor and writer as well as a photographer—took place when he was a sophomore in college and accepted a job putting out the house organ of the Milwaukee company, Strobo Research (one-time manufacturers of electronic flash and strobe units for amateur and professional use). (Continued on page 96)

Although Harbutt can, if necessary, handle view cameras and complex studio lighting, most of his work is with miniature cameras, available light. Migrant farmers, above, were shot with Nikon, 50mm lens, Tri-X film exposed at approximately 1/125 sec. and f/5.6 and developed in Ethol UFG. Camera was prefocused. Doctor's heads, above, were actually shot during an operation; camera on tripod, 135mm lens, Tri-X, f/5.6, 1/100. Tent show, opp.: 50mm Nikor at f/1.4, 1/4 sec. Tri-X was pushed in UFG.

DISCOVERY no. 41



FASTEST FILM FROM GERMANY

ISOPAN RECORD, latest product of the Agfa plant at Leverkusen in West Germany, is a black-and-white film which belongs in the "superfast" speed classification. The "official" exposure index of this film is 29°DIN, or approximately 640 on the ASA scale. However, according to Agfa, best results are obtained with a rating of 34°DIN, which I figure out to be in the 1600-2000 range. That's a lot of film speed—if you have it.

Isopan Record was introduced at the Cologne Photokina last October, in 35mm and roll films, and soon will be available here. I was fortunate enough to get three rolls of the very first material distributed at Photokina. Later we bought some more from a cooperative German photo dealer who air mailed it to us. So I've had the opportunity to see the results of about 15 rolls of 35mm and several 120, some exposed by other Modern staff members. However, that's not enough experience to come to any really final conclusions about such a material, so let's say that this is a report of progress to date, with maybe more later.

How the tests were made

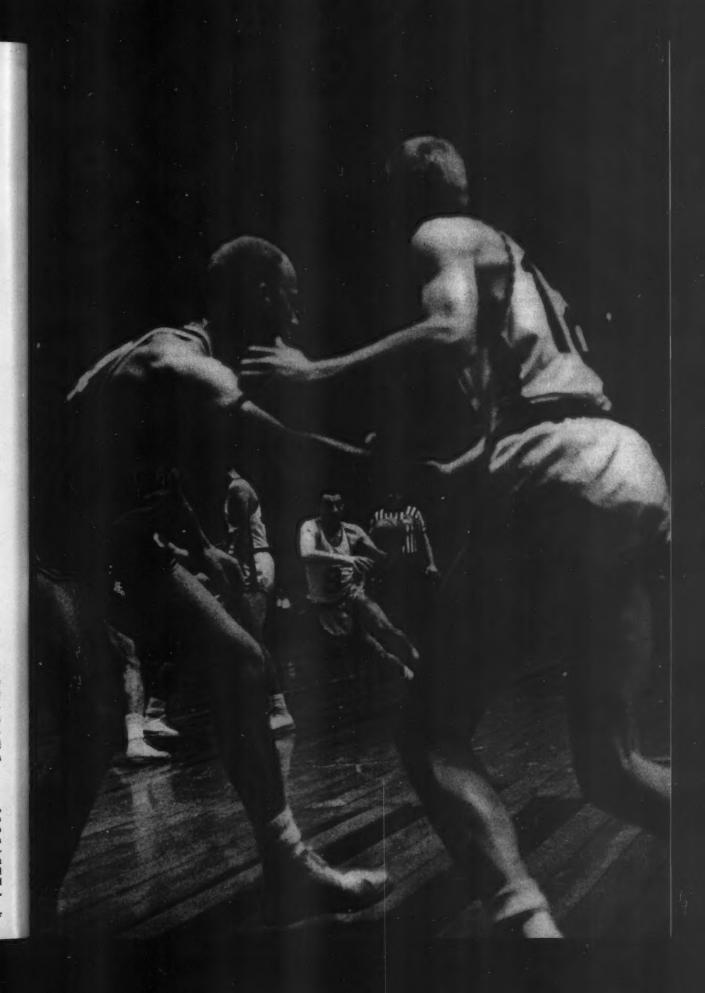
First, let me explain the basis for whatever conclusions are stated. The first thing I do is to follow the manufacturer's instruction to see what happens. So, under conditions as carefully controlled as I was able to make them, I exposed similarly several rolls of Isopan Record 35mm and 120 and other films. Then each was developed, using the particular developer specified by each film maker. The developed films were carefully identified. Then similarly exposed negative pairs of Isopan Record and other films were simultaneously enlarged onto 11 x 14 paper. When these double prints were developed they gave graphic indications of similarities and differences between the results obtained with various film/developer combinations. Such a procedure is not without pitfalls. Differences in the density of the film base due to different colored dyes, overall base fog level, variations in density due to fixing and washing times, and other factors can mislead the experimenter. But these were Agfa Isopan Record 35mm, a brand new film, combines to an unusual degree very high speed, moderate graininess, and ability to produce pictures with outstanding apparent sharpness. There's a roll film too, and both will be available soon.

taken into consideration as much as possible. On the basis of these tests I was able to decide how I should expose and develop my few remaining rolls for actual picture taking.

It soon became apparent that although they bore the same name, Isopan Record 35mm and 120 were not quite the same in behavior (at least not the rolls I had). Agfa specifies development in Rodinal diluted 1:50 for 15-20 minutes at 68°F. The 35mm negatives came up clean and fog-free; the 120 rolls showed a markedly higher fog level.

I found that in daylight with average subjects, following the exposure techniques shown on page 71, the 35mm could be used with an exposure index of 1600 and with normal development would produce well-detailed negatives that printed easily on No. 2 or No. 3 paper. Where the subjects were of relatively low contrast—faces evenly lighted by daylight fluorescents and in diffused daylight—an exposure index of 3000 was

STOPPING ACTION AT THE GARDEN: Jim Palmer, left, 6 ft. 8 in., tangles with Kenny Sears, 6 ft. 9 in., as little Richie Guerin, who is only 6 ft. 4 in. tall changes course violently. The exposure: 1/500 at f/2.8 in a Leica with 50mm Summicron lens. The film: Agfa Isopan Record 35mm, exposure index 1200 using an incident light meter, developed 15 min. at 68F in Kodak DK-50 diluted 1:1. This gives about the same results as recommended development in Agfa Rodinal 1:50, 15 min. at 68F.



ISOPAN RECORD (cont.)

feasible, although I don't recommend it. In tungsten light, I found an exposure index of 1000-1200 to give good results with average subjects, such as faces with moderately dark shadows.

These 35mm negatives enlarged well on No. 2 and No. 3 paper. In full negative 3 x 10 prints there was visible but unobjectionable graininess; in full 11 x 14 prints the graininess was quite noticeable but not excessive; in a 15X enlargement there was graininess galore. But everything in the picture, including the graininess, had an astonishingly sharp-edged look to it. Obviously, Isopan Record 35mm had the ability to produce pictures of high apparent sharpness.

The exposure index numbers game

I've rattled off some astronomical exposure indexes. What do they mean? Well, even these numbers are as mere nothings compared to the exposure indexes which many people think they are using. It's all a matter of how you use your meter, and how bad a result you're willing to settle for. In my case let me say that all my exposure calculations were made with incident light meters (I have three, all in good shape) and were cross-checked with Weston meter readings on a white card, as shown on page 71. I use these techniques because I won't settle for anything less than full detail in the important shadow areas of my negatives, when they are developed normally.

Anytime normal development does not produce full

detail in important shadow areas it's a sign of underexposure, and that means that you're falling victim to the exposure index numbers game. So, if you want to get the best results out of Isopan Record, or any other fast film, I suggest you try the techniques demonstrated on page 71. Otherwise, you're in for trouble.

Taken out of context, the high exposure indexes I used may be confusing. What do they mean in relation to other films? Let me again emphasize that I'm referring only to normal development according to the manufacturer's instructions. I'm not going to speculate on what may happen when different films are "pushed" in the various supersoups which some people favor.

My tests indicated that Isopan Record 35mm was faster than any American-made 35mm film. It and Ilford HPS appeared to be a pretty close match for speed. In the roll film size-Kodak Royal-X Pan was noticeably faster than Isopan Record. The latter appeared to be pretty closely matched for speed with Ilford HPS.

It's a fact that the superfast films may be subject to some changes from batch to batch, so it's possible that the relative speeds might be different when some other batches are tested. In any event, when you get up into the range of film speeds represented by these products it's a very foolish business to try to state definitely that film A is X percent faster than film B, and I won't attempt such a thing in a story like this one.

What about development? (Continued on page 110)

ROLL FILM SPEED TEST: ISOPAN RECORD VS. KODAK ROYAL-X PAN



Kodak Royal-X Pan appears to be the fastest roll film on the market at present, so Isopan Record was tested against it. For these portraits, Royal-X Pan (left) and Isopan Record (right) were similarly exposed in the same camera and developed as recommended by the manufacturers: Royal-X Pan, 6 minutes at 68° F in



Kodak DK-50; Isopan Record, 18 minutes at 68° F in Agfa Rodinal diluted 1:50. Both negatives were simultaneously printed on one sheet of 11 x 14 paper. The Royal-X Pan half shows that the negative had more shadow detail and more overall density than the Isopan Record negative, which printed darker.









TO GET FULL FILM SPEED EXPOSURE MUST BE CORRECT. HERE'S PROPER METER USE.

The superfast films give best results with a combination of "normal" development and minimum "correct" exposure. That is, just enough exposure to record fully all the detail in the important shadow areas when the negative is developed. Any less exposure means that important detail will be missing—underexposure. Any more exposure than the minimum "correct" amount wastes film speed, will not add any important shadow detail, and may cause excessive density in brightly lighted areas.

To get minimum "correct" exposure with the superfast films: use a sensitive, accurate exposure meter; set the meter for an exposure index 2-21/2X the "official" exposure index (for very dark-skinned people, 11/2-2X); make sure your meter technique gives you enough exposure to bring out important shadow details. This last point is the rub. How do you go about it? The pictures and text explain this.

1. INCIDENT LIGHT READING IS SIMPLEST: Incident light meters with hemispherical light collectors measure the brightness of all the front, side, and top light falling on the subject, are designed to automatically allow enough exposure to bring out important shadow details. Simply aim the "ping pong ball" at the camera position. Incident light meters with flat light collectors don't measure the sidelighting, but in most cases the only error will be a slightly

greater exposure than if sidelight were measured.

2. WHITE PAPER READING, X5: One good way to get an "average" exposure with a reflected light meter is to take a meter reading off a clean, matte surface white paper and give 5X the exposure indicated. Hold the paper straight up and down and facing the camera position. If turned at an angle, side lighting may change the readings considerably. This method permits accurate readings in dim light.

3. AVERAGE SHADOW, HIGHLIGHT READINGS: Meter the important shadow areas, then the important highlight areas. Give an exposure halfway between. This is less consistent than methods 1 and 2.

4. EVEN LIGHTING TECHNIQUE: With soft, even light, as here, there are no important shadow areas on the face—just take a reading off the skin. However, dark hair, eyes and clothes will be underexposed and lacking in detail. To correct this, give 2X indicated exposure, or use "average" readings as in 3.

The results using these various techniques will not all be identical but they all achieve substantially the same result—correct exposure.

SUPERFINE 35 MM? HERE'S THE LATEST

Adox Doku-Pan—You can't find the grain, even in a mural-size enlargement

THERE ARE SO MANY new films these days—all claiming the speed of a sputnick or the fineness of a spider's web—that it takes something really startling to make a photographer sit up and take notice. Modern's editors did when they saw, on their recent jaunt to Germany, the mural-size, almost grainless enlargements made from 35mm Adox Doku-Pan. Accustomed as they were to the amazing enlargeability of such thin-emulsion films as Agfa Isopan FF, Adox KB-14, Perutz Pergrano-14, Kodak Panatomic-X and Ilford Pan F, here, they found, was something to outdo them all.

These films are not "new," strictly speaking, but have not yet been introduced to the American market. However, the editors were able to obtain a few rolls of 35mm Doku-Pan for testing purposes. I found it to be everything they said it was. By careful exposure and processing I was able to get superb quality—11 x 14 prints in which no grain at all was visible. And 8 x 10 prints from the same negatives were scarcely distinguishable from 8 x 10 contact prints. Actually, this film outstrips the capability of most modern lenses in resolving power.

Doku-Pan, with an ASA exposure index of 16, was designed primarily, as its name suggests, for document copying and other technical applications. It has a rather steep gradation and is capable of reproducing minute detail with startling clarity. Inherently more contrasty

than general purpose films, it requires special handling to provide a tonal range which is pictorially pleasing.

As readers of German periodicals may know, Doku-Pan is the favorite of Hamburg photographer Willi Beutler, who has been credited with developing thinemulsion films and persuading the manufacturer to produce Adox KB-14 and KB-17. He regards it as the ultimate refinement of the thin-emulsion film, and uses it for a variety of general subject matter—including action. (At first thought, a speed of ASA 16 would seem a bit too slow for action, but consider what can be done with Kodachrome—at ASA 10. I found that in sunlight Doku-Pan could be safely exposed at 1/100 sec. and f/4 or f/5.6.)

Beutler uses the Neofin Technique (which he developed) to overcome the inherent contrast of Doku-Pan and make it practical for everyday use. As I have written before, Tetenal's soft-working Neofin Blue, is, in my opinion, by far the best compensating developer for thin-emulsion films. The formula is designed to bring out shadow detail, at the same time slowing development in the highlights. So long as exposure has been accurate, Neofin Blue will balance out densities and provide a negative of superb quality.

To get full gradation and soften contrast, develop Doku-Pan 12 to 14 minutes in Neofin Blue (one tube in 1000 cc of water). If you want to maintain high contrast for some technical or aesthetic purpose, double the speed rating to ASA 32 and develop 6 to 8 minutes (one tube Neofin Blue diluted in 500 cc of water).

A similar document coping film, Agfa Agapan, provides equally pleasing and grainless results when developed as recommended above.

Unfortunately, neither Doku-Pan nor Agapan is available here now. And after I began my experiments, I discovered that the former distributor of Neofin Blue is no longer importing it. I tried to find an equivalent developer on the American market, but could find none to equal it for use with these films. However, I suggest that if you have a desire to try making your own giant, grainless enlargements—send a stamped, self-addressed envelope to Mural Editor, Modern Photography, 33 W. 60 St., New York 23, N. Y. They'll be glad to tell you how you can obtain Neofin Blue, Doku-Pan or Agapan and conduct your own experiments. For those who are really adventurous—and enjoy the chemistry of the darkroom—Neofin Blue can be prepared from the Willi Beutler formula at left.—Y. ERNEST SATOW

THE WILLI BEUTLER FORMULA

"Solution A:

10 grams (150 grains) metol
50 grams (1 oz. 300 grains) sodium sulfite anhydr. (of the purest quality)
1000 cc (32 oz.) water (boiled)

Solution B:

50 grams (1 oz. 300 grains) sodium carbonate anhydr.

1000 cc (32 oz.) water (boiled)

To use add 50 cc (1.5 oz.) of A and 50 cc of B to 500 cc of water. Develop low-speed films at 65°F (18°C) for 7 to 10 minutes according to gradation."*

*From Hans Windisch' The Manual of Modern Photography, Heering Publications, Vaduz, 1956, p. 91.



Although a great deal of the original print quality is lost in reproduction, the photos here do indicate what can be done with superfine Doku-Pan film. The giant eye, lower left, is an enlargement of approximately 50X from the contact print below. That's the equivalent of a mural-sized enlargement about 4 x 6 ft.! Exposure was 1/30 sec. at f/4 with a Nikon S3 and 50mm f/3.5 Micro-Nikkor C lens. A tripod and cable release were used to assure maximum steadiness. Two floods provided light,





LISA LARSEN: THROUGH POLAND WITH A 35MM

Cooking demonstration of U. S. frozen food products (see text, page 77)



Few photographers can photograph
people as perceptively as Lisa
Larsen. Her pictures, made in
Communist Poland, are of outstanding quality. Many of
them have appeared in Life
magazine. MODERN presents a
short portfolio of photos which
we consider her finest work.





In my pictures I have tried to convey how a political event has altered the lives of individuals in Poland, specifically how it affected the feelings and emotions of the people. After one month's coverage, I had barely scratched the surface of what needed to be said. I subsequently spent a total of a year's time photographing the Polish scene. It was fascinating to be living so close to the splashing of a historical fount and observe historical continuity which I found photographable. Here a photographer had the unique opportunity of writing history in pictures. I have endeavored to communicate in depth to people, primarily in the West, what life is like in a Communist country. Finally, I also hoped my philosophy would bring an enriched understanding of people to people.

Peasant woman at outdoor religious ceremony





Artist Tadeusz Kantor

PHOTOGRAPHING FACES: Diverse expressions of curiosity, suspense and laughter (pages 74 and 75) were photographed with a 28 or 35mm lens during a cooking demonstration of U.S. frozen food products at the Poznan fair. I stood behind the counter and shot outward. The light was excellent-daylight filtering through a large nylon dome. At left: I asked artist Tadeusz Kantor to explain his paintings and at that moment shot the picture using the 50mm lens fairly wide open at a slow shutter speed. The only light was a bare central hanging bulb. Below: For large head close-ups, I like to work with an 85mm lens, which gives me a good image size on the negative with little distortion. I found this standard bearer with tears in his eyes at the church in Praga when Cardinal Wyszynski was released from prison. At far left: Note the strength and beauty of this serene Polish peasant woman during prayer at an outdoor religious ceremony. I again used the 85mm lens.



Standard bearer in church procession



USING WINDOWLIGHT: The pale Polish winter sunlight filtering into the Warsaw Art Academy studio was sufficient to photograph these two students observing their professor during his rounds of criticism. The lighting itself seemed to envelop the students in an aura of mystery and beauty like a painting—and that's what I tried to capture. I think it was taken with a 35mm lens, but it may have been a 50. Frankly, I seldom remember lenses or exposure. The film was Ilford HP-3. Three Ilford 35mm films were used in Poland: FP-3, HP-3 and HPS rated at 100, 200 and 400. For bright outdoor, general, or low light conditions I don't believe in pushing film speeds further. Although I have a fast 50mm lens I prefer to use all lenses at openings no larger than f/2.8. I would rather try a slower shutter speed, even 1/10 sec., than open the lens and lose the depth of field.

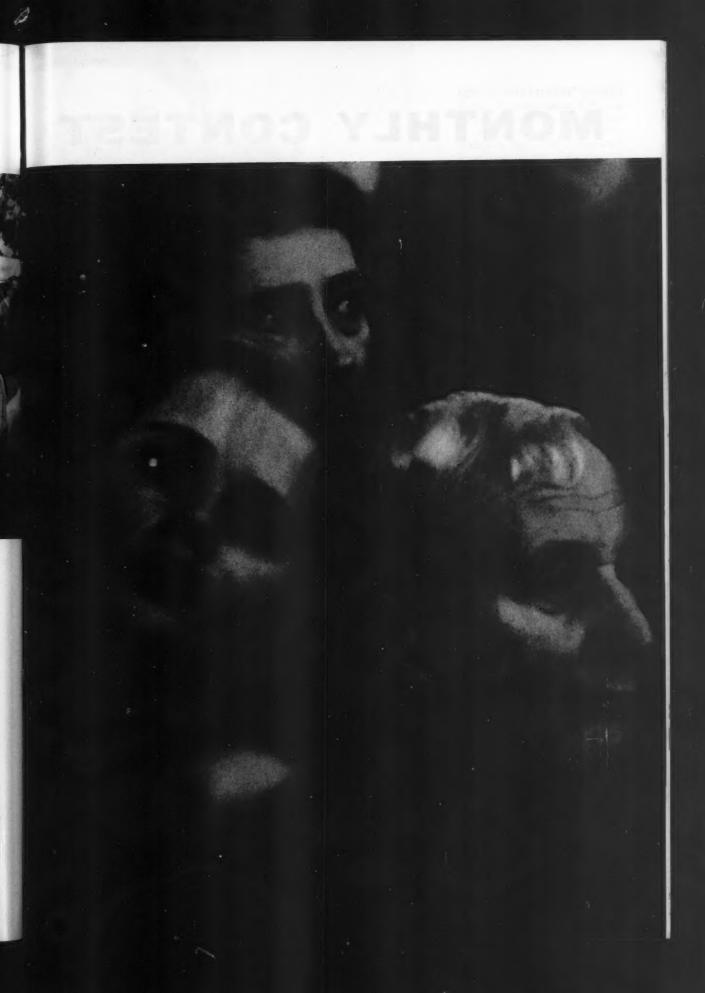


every bit as wild, if not more so, as similar balls in Paris or New York. I made many photographs using existing light—the light I prefer—but to stop this action with sufficient detail, a small electronic flash unit was the only answer. (I carry one for just such emergencies.) Since the ceiling was far distant, bounce light was out. Instead, I used direct flash as far as I could reach, high to the left of the camera. I'm pretty sure the picture was made with a wide-angle lens.



PHOTOGRAPHING OUTDOORS: From the steps of St. Ann's Church in old Warsaw, I was able to get sufficient height to photograph the individual faces making up this sea of Polish people united in religious devotion. It would be an extraordinary sight anywhere, but especially so in a Communist country. The widest lens I carry, a 28mm, was used to make the picture. I estimated exposure, although up to a few years ago I did use a meter regularly. However, I discovered that my exposure guesses without a meter were quite accurate outdoors.

PHOTOGRAPHING INDOORS: One family—three generations, share a spiritual bond as they listen to a sermon by Cardinal Wyszynski. Here I was forced by the low illumination to use my fastest film, Ilford HPS, with an f/2 or f/2.8 aperture. My 85mm f/1.5 lens singled out the grouping of three heads and seemed to close the depth between them. Incidentally, when working indoors or out, I usually carry three Leica M3 cameras, one around my neck and one over each arm, with 35, 50 and 85mm lenses respectively. These are my most-used focal lengths, although I also have the 28mm plus 150 and 300mm lenses. These longer ones I use on a Hexacon single-lens reflex when necessary. All film is sent back to the U. S. for processing by Life and Modernage. (Technician Axel Grosser of Modernage Photographic Labs reports that all Lisa Larsen's films are developed by inspection in Kodak D-23.) Her HPS negatives, says Grosser, are sometimes processed in Microphen if shot in very poor light. Grosser generally makes 16 x 20 prints which are remarkably sharp and lacking in graininess.



MONTHLY CONTEST

High speed films improve technique of 4 winners

STARTING with this issue, all pictures chosen for these pages will be awarded equal prizes of \$25. We've found that the high quality of entries has made the judging of First, Second and Third prizes (at \$25, \$15, \$10) almost impossible.

Anyone may enter any number of black-and-white prints in Modern's "Monthly Contest." Pictures must be 4 x 5 or larger, with the exception of Polaroid prints, which may be submitted in original size. Your name, address and all technical data must appear on the back of each print. No entry blanks are required. Please enclose a stamped (first-class postage), self-addressed envelope if you want us to return pictures we're unable to use. All entries are considered for use elsewhere in the magazine. Send them to Columns Editor, Modern Photography, 33 W. 60 St., N. Y. 23, N. Y.

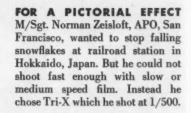
All Prizes
Now \$25
For Your
Pictures.
See Details,
Left!



FAST FILMS FOR GENERAL PURPOSES ARE FINE for $2\frac{1}{4}$ x $2\frac{1}{4}$ negatives. Even the fastest will allow blowups to 11 x 14 without excessive grain. Erika Gericke, Zurich, Switzerland, used Ilford HP3 film to

catch this outdoor shot. The enlargement was of good quality. She used a Rolleiflex, 75mm f/3.5 Tessar lens, 1/50 sec. Note how her f/8 aperture gave adequately deep zone of sharp focus.





reated a challenge for Ira Mandelbaum, New York, N. Y., as he photographed circus performer with a Leica IIIf. He also wanted the pole as sharp as possible, foreground to background. The answer was Tri-X, at f/8, 1/250 sec.





SOLVE A DEPTH OF FIELD problem when shooting close. Left, Joel Elkins, New York City, was able to stop down Rolleiflex lens to f/8, 1/60 sec., even in dim windowlight, by using Tri-X.

MODERN

MODERN PHOTOGRAPHY'S exclusive monthly equipment report section devoted to informative, unbiased field tests of equipment submitted to the editors for review.

35MM MINOLTA V2 HAS SPEEDS TO 1/2000



Specifications: 35mm rangefinder camera. Lens: 6-element, 45mm f/2 Rokkor with stops to f/22; focuses down to 2.6 ft. Shutter: Between-lens leaf-type Citizen Optiper HS, 1 to 1/2000 sec. plus B, MX sync, self timer. Focusing: Projected frame view rangefinder with automatic parallax correction. Other features: LVS, single stroke rapid film advance, rapid rewind crank. Price: \$99.95. Importer: Kanematsu New York, Inc., 150 Broadway, New York 38, N. Y.

Not since the Eastman Kodak Synchro "800" shutter was introduced a few years back in folding roll film cameras and miniature Graphics have higher speeds than 1/500 sec. been incorporated in leaf-type shutters. Now the Minolta V2 comes along in 35mm size with speeds to 1/2000 sec.

But just where does 1/2000 sec. come in handy? Photographing moving propeller blades? A humming bird in flight?

We photographed some football

players who moved directly past the camera. Exposure? Using Super Hypan at an exposure index of 500, shooting in bright autumn sunlight, we exposed at 1/2000 sec. and f/8 and stopped everything. Not a blur of motion was visible in any of the photographs we made. The result of stopping the action cold? The sharpness of image, resulting from a combination of fast shutter speed and good quality lens, was equal to that made possible by electronic flash indoors—extremely sharp. Enlargements over 10X made from our negatives seemed to retain the sharpness of a 5X print. It certainly proves that many unsharp photographs are caused by subject or camera movement.

There is a handicap: The Minolta V2's 1/2000 sec. speed can only be used at openings f/8, f/11, f/16 and f/22. Likewise, 1/1000 sec. can be used only from f/4 to f/22. The reason? In order to make such fast speeds possible, it was necessary to design the shutter so that it does not open completely at the extra fast speeds. Therefore, when using 1/2000 sec. with apertures larger than f/8, the shutter will not open wide enough to uncover the entire aperture. Similarly at 1/1000 sec., f/4 is the largest aperture which can be used.

We checked the shutter and found that the 1/2000 sec. speed is really 1/1750 sec. Since leaf-type shutters with supposed top speeds of 1/500 generally vary from 1/200 to 1/400, depending on wear and tear—and even temperature, the top shutter speed on the V2 is really quite within acceptable tolerances. The difference in speed between 1/1750 and 1/2000 sec. will not produce any noticeable difference in exposure or stopping power of action.

The view rangefinder on the V2 utilizes a very bright rangefinder image in contrast to the darker surrounding viewfinder, which simplifies focusing. Works fine in most lighting conditions. However in low light, viewing is a little difficult.

The single stroke rapid film advance lever is smooth operating. The edge of the lever comes to a slight point—

but no cuts or bruises resulted from advancing film. The rapid rewind crank will wind a 20-exposure roll of 35mm film back into the cassette in 4 ½ seconds. The V2's rewind button automatically stays engaged until released by action of the film advance lever. Camera also has an automatic zero return film counter.

The Minolta V2's Rokkor PF 45mm f/2 lens proved to be excellent when used wide open at f/2. Sharpness extended right out to the edges of the negative. Optimum aperture is about f/5.6 and here it produced even more amazing results, both in the center and at the edges. Overall sharpness decreased very little when the lens was stopped down to f/22.

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V2's LVS offers no problem for those people who like using the old f-stop system. The speed dial and fstop dial can be adjusted separately.

When MODERN sends its first rocket ship to Mars, a Minolta V2 will certainly be along to photograph those fast-moving Martians.—E. M.

BEAUTY SUPER L HAS CONVENIENT BOOSTER



Specifications: Beauty Super L 35mm camera. Lens: 6-element 45mm f/1.9. Shutter: Copal MXV with speeds from 1 to 1/500 sec. plus B. Focusing: Bright spot range viewfinder, with projected frame for 45mm field. Other features: LVS, single stroke rapid film advance lever, rapid rewind crank, built-in LVS exposure meter with

ESTS the newest of

amplifier and automatic reset exposure counter. Price: \$99.50. Importer: Beauty Camera Co., 174 Fifth Ave., New York, N. Y.

n

Amplifiers, or boosters as they are sometimes called, for built-in, clip-on or accessory meters can be life savers in low light. But they can also be downright inconvenient when mounted conspicuously on top of the camera. They may get in the way of picture taking. But the amplifier cell for the built-in Super Beauty L plugs into the front of the camera—out of the way of the camera controls and looking quite like a normal part of the camera.

More important, the booster increases the meter's ability to deliver an accurate reading in low, low light.

There are three positions on the LVS meter dial. The H position is used for readings with the baffle closed, the L position with the baffle open. The A setting is used with the amplifier plugged into the camera when the meter needle wouldn't otherwise even shiver a little bit.

The amplifier showed some tendency to come loose when the camera was tilted slightly or suffered even a light jarring. However, spreading the mounting prongs quickly cured the problem.

The Canter S 45mm f/1.9 lens proved to be a competent performer -even at f/1.9 where central definition was excellent. At f/4 all signs of softness disappeared with the lens we tested. Best results were obtained at apertures f/5.6 to f/8 range.

The bright spot range viewfinder allowed us to bring images into sharp focus quickly. Viewing, even with glasses, proved quite satisfactory, and we had no trouble seeing all four corners of the image.

While the camera is designed for use with the LVS system, f-numbers and shutter speeds may set individually. However, it's not terribly convenient. To do so, you set the desired f-number, hold the diaphragm control ring and then rotate the LVS ring to the shutter speed you want. The rewind crank works smoothly, quickly, and without backlash.—M. A. M.

BOUNCE LIGHT EASY WITH FR MODEL 150

Specifications: Transistorized electronic flash. Operation: 4 "D" cell batteries, AC. Recycling time: About 10 to 15 sec. Flash duration: 1/1000 sec. Other features: Swiveling flash lamp housing; battery "rejuvenator" which extends life of "D" cells. Price: \$49.95. Manufacturer: The FR Corp., 951 Brook Ave., New York 51, N. Y.

Anyone who has tried taking bounce flash pictures with an electronic flash unit held in one hand and the camera in the other hand realizes that it's not easy. Most units are built so that when attached to the camera they may only be used for direct flash.

The FR Model 150 electronic flash unit features a tilting, swiveling flash head. The tilts make it possible to use bounce flash with the unit secured to the camera's accessory shoe. Instead of having to hold the camera in one hand and flash in the other, the FR 150 leaves both hands free to advance film, focus and click off exposureslike having three hands.

The unit may be used with AC current or with the battery pack consisting of four "D" cell type batteries. The batteries cost 25 cents each and have been developed by FR. In the past it was possible to rejuvenate some "D" cell batteries so that their useful life could be extended. However, some could be rejuvenated and some couldn't. FR did some research into the matter of why, and came up with a special battery which always responds to a special rejuvenator attachment supplied with their flash unit.

The flash head has a ready light and a sync cord socket which accepts an FR slave attachment.

We tested the Model 150 and found that the batteries will give about 65 flashes before they should be rejuvenated. Plug the rejuvenator into AC current and the batteries will give another 60 or so flashes the next day. This may be done for about 500 flashes before new batteries must be purchased. The unit recycles in 10 to

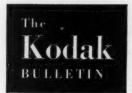


18 seconds with the battery pack; in about 10 seconds on AC current. High efficiency with little battery drainage is achieved by a transistor circuit. Our tests indicated that the guide number for Kodachrome should be about 25. _E. M.

UNDER S100: MONARCH AUTO PROJECTOR



Specifications: Manual or automatic 35mm slide projector. Lens: 4-in. f/3.5 Anastigmat. Operation: Automatic with 10-sec. changing cycle, by remote control, or manual. Other features: Spring-tensioned slide feeder; accepts 36 slides mounted in metal binders, or 30 slides mounted in metal and glass, (Continued on page 114)



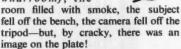
Flash, 2 eyes

—progress since the Wright brothers, or the case for capsulated so hine... why Kodak Flasholders fit every camera...what's what with the generator-capacitor...data where you want it...four Enthusiastic Photographers... every print from one box...and a nice Starflash picture.

Wharroomf!

Some years back, when Orville Wright was still trying to get that thing off

the ground at Kitty
Hawk, you could already take flash pictures. You poured
some magnesium
powder into a longhandled pan, held it
over your head, and
pulled the trigger.
There was a grand
wharroomf, the



Things are more civilized today. Sunshine comes in handy capsules named M2, M5, M25, and so on. Screw a six-shootin' Kodak Rotary Flasholder on a fast-action flip-wind camera such as the



Signet 50 or 80—and you can click off flash shots faster than your favorite youngster can change expression. No smoke. No wharroomf! And in color, too.

So, hooray for flashbulbs, we say, and long may they wave! Now—when days are short and nights are long and the dark is darker—it's the season to be waving them.

Flash for every camera

Why does Kodak make so many flash items? Go on, ask us. It's because we've worked out a system that will let you fit practically any type of Kodak flasholder to practically any modern flash camera and put the difference in the bank!

Consider the Kodalite fitting. It's a marvelous device. Joins any current Kodak flash camera, such as (deep breath) the Kodak Signet 30, 40, 50, 80, Pony II, Pony IV, Duaflex, and so on, to a Kodak Generator Flasholder, Type 1, Rotary Type 1, Kodalite IV, Kodalite



Super-M 40, Kodalite Midget, Kodak Pocket Flasholder, Type B-1 . . . directly —no bracket . . . snug screw-in—to give you the safest, neatest, best-balanced unit you can imagine.

Or consider the Kodak Universal Flasholder Bracket... which fits practically any hand camera that has a tripod socket... and accepts any of the Flasholders with Kodalite fittings... and has a cord with both ASA bayonet tips and Continental tips, to fit all sorts of shutters.

Or, consider the Kodak Clip-On Flasholder Adapter, which lets you use the above with cameras that synch through the accessory shoe on top—

Or the Generator Type 2 and Rotary Type 2 for cameras that *mount* the flash in the accessory shoe but synch through the shutter—either ASA or Continental.

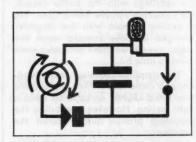
And then there are the B-C flashpacks, to convert older flash units to modern B-C power... the flashguards... the extension cords. Amazing array. Rugged, too. And efficient. Take your old flash unit in, and let your Kodak dealer fix you up with a modern one from Kodak, At a sensible \$3.95 up.

G-C for Generator-Capacitor

For simplicity and low cost, you can't beat a simple battery-flash unit. For dependability of synch, the next step is a capacitor unit—such as the familiar Kodak B-C flash units. For dependability of everything—no over-age batteries, electricity made as you need it, reliable instant-discharge capacitor synch—the right step is our new Kodak Generator Flasholder.

The Generator Flasholder has a red winding knob. Give it a ¾ turn, and you charge your unit to flash one bulb. That's it. No batteries. The first cost of the Generator Flasholder is the final cost. With average use and good care, it ought to last you a lifetime.

What's inside? An efficient alternating-current generator, a germanium rectifier to convert the alternating current



into direct current, a high-capacity electrolytic condenser to store the electric charge—ready to fire the flashbulb as soon as you press the shutter release of your camera. All this in a neat unit not much bigger than a pack of cigarettes, that folds to fit your pocket!

You get all this for \$13,95 with Kodalite fittings, \$14.95 with accessoryshoe fittings. But you get even more—the certainty that you'll never be without juice when you need it.

Let your Kodak dealer show you the Kodak Generator Flasholder—and fit one to your camera. It takes all the popular small bulbs—M2, M5, M25, 5, 25. And don't be fooled by the size of the neat, mirror-finish reflector. It's designed to the proper curves, and packs a bigger reflective wallop than you'd ever suspect. Check the built-in exposure computer on the back of the Flasholder for the complete flashpower story.

& richer blacks

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Here's a happy citizen who has both eyes open. Claims he can follow action more easily that way.



He's pleased as Punch because his new camera—a new Kodak Signet 80—has a modern one-to-one finder that shows his subject natural size!

This is a new experience in finders; and if you haven't experienced it yet, go right down to your Kodak dealer's and look through a Signet 80.

The one-to-one "unit-power" finder gives you a new kind of viewing control ... new freedom. Lets you analyze composition as easily as when you look directly at the scene ... see details better ... follow action twice as easily with both eyes open.

And when you're looking through the Signet 80, look through all of it—the built-in exposure meter...interchangeable lenses...rangefinder coupled to all lenses down to 2½ feet...two flash inputs...and the unique film "injection" loading that lets you load the Signet 80 with both eyes closed! Try it and see.

You'll find the Signet 80 is a modern 35 you can buy with both eyes open—and know you're getting a bargain at \$129.50. That price includes the basic 50mm f/2.8 lens.

Campfire story

Once there were four Enthusiastic Photographers sitting around a campfire, talking about Kodacolor Film. And the first one rose up and said:

"Brothers, it's the convenience that really sends me. I don't have to fool with filters. I can shoot clear flash and daylight on the same roll. I've got exposure latitude, too, in case I make a little mistake. And the prints are gorgeous!"

Then the second Enthusiastic Photographer rose and said:

"Convenience is all very fine, but it's

the wide choice that appeals to me. I can take a 35mm Kodacolor negative and get album-size color prints for my wife ... color slides for myself ... enlargements in color to frame... even black-and-white prints and enlargements. Let's see you

beat that with any other film!"

Then the third rose, cleared his throat,

"Gentlemen, I am the creative type. I am also a proud technician. In my darkroom, I can take a Kodacolor negative and Ektacolor Paper... I can enlarge, crop, dodge in color, manipulate color values for mood and effect, be a genius all over the place. Then I can take panchromatic Kodak Panalure Paper and make black-and-white enlargements from the same negative, so beautiful they'll knock your eye out! This is why the new Kodacolor Film appeals to me."

Then they all looked around for the fourth Enthusiastic Photographer. He wasn't there.

He had become worried about all this enthusiasm and had gone down to his Kodak dealer's to stock up on Kodacolor Film before the others bought all there was of it.

If you haven't tried out the new Kodacolor, and explored its potentialities, there's a moral here for you. The moral: Try it now. It comes in all popular sizes and 135 magazines, too.

Richer blacks, one box

Sometimes a product has so many good features the most important one gets lost in the shuffle. Like a sports car with fifteen forward gears—you forget to mention it runs on regular gas and will go 150 mph without a tail wind.

Or like Kodak Polycontrast Paper. We get to talking about the single-box convenience and economies of this modern variable-contrast paper, and forget to mention the extraordinary print quality.

Extraordinary? You've never seen anything like it! The whites are so brilliant and the blacks are so rich they start you thinking about diamonds on black velvet... or an Arizona sky on a clear midnight with all the stars blazing.

To quote a famous illustrator after he'd made his first Polycontrast enlargements:

"Yum yum yum yum yum yumy!"
That isn't a very lucid testimonial;
the best Polycontrast Paper testimonial
is a print on Polycontrast Paper. Make
some and find out. And the same goes
for Polycontrast Rapid, too.

Starflash for the lady



We're printing this picture because we like it. It was taken by a lady using a Brownie Starflash Camera—which, by the way, is a very pleasant camera for a woman to handle, because of its compactness and light weight. The lady is the wife of Chief Photographer Charles Cooper of the Durham, South Carolina, Herald Sun. The picture was taken during a contest sponsored by the State of Minnesota for press photographers' wives from all over the U. S. It won the contest.

Perhaps in a Kodak ad it would be more proper of us to print a picture of the Starflash; but you can see Starflash Cameras at your Kodak dealer's any time you're looking for a gift for your wife. Choice of four attractive colors. Complete outfits, \$9.95 and \$10.95. They make sharp "super-slides" in full color, too, on Kodak Ektachrome 127 Film.

Prices are list and are subject to change without notice.

Kodak

Technical Assistance By Morris H. Jaffe

How to Shoot a . . .

WEDDING

OF ALL the films you shoot, the wedding movie will be the one where you'll be most concerned with audience reaction—because the audience will be the people in it. But since it's about them, you'll be able to get by with fairly ordinary footage—perhaps film that's not too

good from a technical point of view.

However-stop and think. For most people, a wedding is a once-in-a-lifetime affair and they certainly rate the best movie you can turn out. Once you decide that a wedding film is not just "another" family movie, you'll want to pay attention to some type of planning. Best approach is first to make a list of key shots-bride leaving her parents' home, bride and groom arriving at the church, the ceremony, receiving line, dinner, and finally the bride and groom's departure. But this provides only the bare framework of your wedding movie. Actually, you'll be able to shoot those scenes with about 50 ft. of 8mm or 100 ft. of 16mm film-but they hardly tell the complete story of the particular wedding you're shooting. The normal chain of events can be elaborated upon to create a really different wedding film-one you'll be proud to show even to a general audience.

You'll have to look for little things—the minor incidents that will bring back the memory of that day with a reality that only motion pictures make possible.

For example, you may notice that the bride looks pensively out the window watching the rain. (Right, this page.) This surely makes a more interesting opening shot than the usual portrait-type footage with the bride sitting on the floor with her gown spread about her. And don't forget that the wedding day has special meaning for the bride's mother, too. A medium or close-up shot of bride and mother chatting injects a feeling of warmth and naturalness into the film.

Close-ups are important and tell a much better story than the somewhat objective, detached medium or long shot. You can use close-ups with particularly good effect for scenes of the bride showing her ring to friends. Cut from a close-up of the ring to individual faces of the people looking at it, then back to the bride.

Most wedding movies present one real major shooting problem—the ceremony. (Continued on page 94)

No. 12

FAMILY

MOVIE CAMERA

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Wedding invitation makes a natural title for your film. Close-up attachment makes it easy to shoot even with cameras that won't focus really close to the subject. More punch can be added to title by placing it on interesting background, such as still-life print or flower decoration.

Watch for minor actions, such as bride looking at weather, for leads to scenes that depart from the usual. Here, instead of rather prosaic opening shot of bride in living room, we open with her looking at rain pelting against window.

Silhouette shot can be made with daylight film. Take exposure reading for window light, and open lens slightly for some facial detail. We made this shot as substitute for usual one of bride and mother standing stiffly against distracting background.

Close-ups play a large part in making your film interesting. They define the many small actions that contribute to the total impression of a wedding. Here, close-up of ring makes point more strongly than medium shot could.

A shot of the church begins scene of bride and groom's arrival. It highlights the importance of the occasion, and provides a change of pace from action of couple entering doors.

Even badly exposed scenes of actual ceremony will have a natural appearance impossible with supplementary lighting under most circumstances. Many churches will not permit lights during ceremony. Keep footage brief if you feel that exposure is poor. See text for ideas about how to get the best shot possible.

Tele lens will allow you to shoot close-ups even though you aren't permitted close to altar. Even 8mm telephoto lenses may be had as fast as f/1.

Don't be afraid to cut quickly from one image to another. Quick cutting, as in the champagne pouring shot, can make close-ups even more effective. Often, in professional movies, you'll see close-ups that last about one second.

Where you shoot from is as important as what you shoot. Selecting a high angle sometimes makes it possible to get much better detail in faces than shooting on the same level as the crowd.

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SUSAN SHERMAN

(Continued from page 57)

image appears as a positive and should be viewed by transmitted light. The correct exposure shows strong tonal values and resembles a good contact.

Susan follows up the test with a full diapositive of the original negative, using the determined exposure time. After the film is developed she fixes it for about five minutes and washes it for 10 minutes. Drying at normal room temperature takes only about 15 minutes.

The high contrast negative is next. It's made much like the positive-with the positive and a fresh piece of Kodalith film placed emulsion-to-emulsion in the print frame.

After the negative is dried, it is checked for pin holes-something that's bound to appear on Kodalith used this way. She uses Kodak Red Opaque to touch them up on the shiny side of the

Susan makes her prints on normal grade paper and develops in Kodak Dektol diluted 1 to 2. The regular safelight recommended for the paper can be used, of course. Susan determines enlarger time by looking for true blacks with one min. of development.—THE END

LARGE CAMERA

(Continued from page 38)

To find the actual speeds of your shutter, proceed as follows: examine your test shot and count the segments which the pointer attached to the rotating turntable swept during the exposure. Subtract one segment from the total (to compensate for the width of the pointer). Divide 130 by the remaining number of segments swept by the pointer. The resulting figure is the actual exposure time in fractions of a second.

Let's assume that in one of the tests the pointer swept 27 segments. Subtract one segment and you get 26. Divide 130 by 26 and get 5. In that case, the actual shutter speed would have been 1/5 sec. Another example: number of segments swept might have been 331/2. Subtract one and get 321/2. Divide 130 by 321/2 and get 4. In that case, the actual shutter speed was 1/4 sec. Another example: number of segments swept was 3.6. Subtract one and get 2.6. Divide 130 by 2.6 and get 50. In that case, the actual shutter speed was 1/50 sec.

The mathematics behind this method is simple. Since your calibrated ring has 100 divisions and the turntable revolves at 78 rpm, the pointer sweeps 7,800 segments in 60 seconds, or 130 segments in 1 second. Divide 130 by the number of segments swept during the exposure less one (representing the width of the pointer), and you get your actual shutter time in seconds or fractions thereof.—THE END

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At all leading dealers, or write

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NEW PRODUCTS

(Continued from page 46)

Woodwork Specialties Co. Editing Tray. It consists of a wood frame, with dividers that compartmentalize the unit for storage of individual shots or scenes. The bottom and the sliding cover are made of masonite. The tray may be had in either blue or gold finish. Price is \$5.95. Write:

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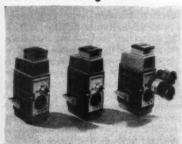
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RAPHY

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The Bell & Howell Sunometer 8mm movie camera is equipped with a light meter designed to make transferring the light reading to the lens diaphragm as simple as possible. You point the camera, read the meter on top of it, and then "dial" the corresponding number on the lens. The meter is calibrated for both Daylight and Type A Kodachromand has a shielded housing to cut down the effect of extraneous light.

The camera is finished in fawn and brown and constructed of die-cast aluminum. It has roll film loading, single frame, a continuous run lock, and 10-ft. film run on one wind. The picture window viewfinder has etched frames for normal, telephoto and wide-angle lenses. Prices of the Sunometer are: with 10mm f/2.3 lens, \$44.95; with 10mm f/1.9 lens, \$54.95; and with a three-lens turret, 10mm f/1.9 normal lens and tele and wide-angle converters, \$89.95. Write:

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the "books." The reversible insert in the files adapts the book to either long or short magazines. In addition, gold transfer paper included with each file makes it possible for you to title or otherwise identify each slide set. The files are bound in blue with gold lettering. Price of each Photo File is \$1.79. Write: ing. Pr

HOWARD MFG. CO. 5464 BOTHWELL RD., TARZANA, CALIF.

Ricoh Super Slide Twin Lens

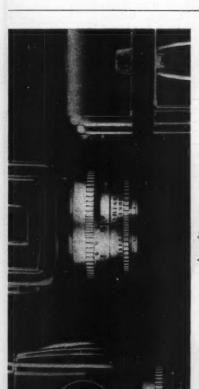


The Ricoh Super 44 looks much like its bigger brothers in the 2½ Ricoh twin-lens reflex family—but instead uses 127 film for the super slide format. The camera features matched 60mm f/3.5 taking and viewing lenses, Citizen shutter with 1 to 1/400 sec. speeds, MX synchronization with selector ner, focusing knob.

with selector with selector with selector film advance knob and exposure counter. Other features are fresneltype focusing screen, two-eye sports finder, film reminder dial, self-erecting hood with built-in magnifier, cordless flash contact in the accessory shoe and an additional contact on the front of the camera. It has a hinged back for easy access to the film chamber and all controls and depth of field scale can be viewed from the top. Construction is of die-cast metal with chrome and black leather trim. Price of the Ricoh 44 is \$42.50. Write:

Panorama Head for Movie Making

The Accura Panomat is designed to take the shake out of your movie panorama shots. It consists of a geared camera rest and a crank. Turning the crank creates a smooth panning action. The unit can be mounted either above (Continued on page 98)





Interchangeable lenses,

film backs and viewers mean you can set this single-lens reflex up for every possible assignment in 7 seconds. Switch from color to black and white in mid-roll ... change lenses at will ... add magnifying hood or sports viewer as needed.

15 Cameras in one!

New model 500C features Synchro-Compur shutter, automatic diaphragm, and coupled EVS system. With Zeiss Planar F:2.8 lens, from \$489.50. As low as \$22.03 a month on new "Pennies-A-Day" Plan. Write for literature and name of your nearest dealer. PAILLARD Incorporated, 100 Sixth Ave., New York 13, N. Y.

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for 35mm, 127, 120 and 620 film.

Another darkroom step made easier. Perfect for those small processing jobs. Insert film into guide, then

insert film into guide, then simply turn handle to wind film on reel without fumbling, kinking film, finger marks, etc. All parts are non-corrosive stainless steel. Kindermann film loaders and reels are hand operated, small, inexpensive. Individual reels and loaders list for \$4.95 each. Combination reel and loader lists for \$8.95.

MULTIPLE AUTOMATIC REEL LOADER for 35mm and 120 film.

for 35mm and 120 film.

A must for quantity processing, the unit loads film onto stainless steel reels without the danger of finger marks. A unique open front housing stacks the reels to be loaded one above the other. Each reel moves down to the bottom of the housing. There the film is fed through a guide, into the small reel slot. A crank simply winds the film on the reel. When reel is fully wound it automatically drops out of the back of the housing, permitting the next empty reel to drop into place for easy loading. This automatic operation makes difficult jobs easy to manage.

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Bounce Flash Exposures: Are Yours Always Right?

It's easy to calculate direct flash exposure. Once you have your guide number you divide the footage from light source to subject into it and you have your lens opening. Exposure for bounce light, however, is more tricky. There are five factors: reflecting surface, power of light, distance of light, film speed, film development.

Now here's how you can get a good estimate of your bounce flash exposure.

1. Measure the distance between the flash reflector and the surface from which the light will be bounced.

2. Add to it the distance from the surface to the subject.

3. Divide this footage into the guide number of your electronic flash unit or flashbulb.

4. Use a lens opening two stops larger than the opening you get from (3).

5. If the reflecting surface is not white, open up four stops instead of two.

Here's an example of how this works in practice. Suppose the distance of the flash to the wall or ceiling is 3 ft. and the distance from the ceiling to the model is 5 ft. The total distance is 8 ft. If your electronic flash guide number for the film you are using is 88, your lens opening would be f/11. Now open up two more stops to compensate for

light loss due to reflection and your correct lens aperture is thus f/5.6.

Different electronic flash units, unfortunately, will have varying guide numbers. Often, the guide numbers furnished by the manufacturers are, to say the least, on the optimistic side. However, most manufacturers do furnish a watt-second rating of their units in the instruction book. If you find you're not getting proper exposure by following the guide numbers furnished, try the table below to get a correct guide number. It's based on a white ceiling and an 8-ft. flash to ceiling to subject distance. Most small, inexpensive flash units are rated between 25 and 100 wattseconds, but I've included some more powerful units in case you have them. Use the chart as a starting point.

Now let's take up development. I've found that electronic flash tends to be on the soft side-not enough contrast in the negatives to please me. By everdeveloping slightly (10 to 20 percent) you can bring out the contrast and increase your apparent film speed one or two stops. An ASA 100 film, for instance, can be used at an index of 200 or even 400. Warning: Beware of overdevelopment of very fast films in 35mm size. Quality can suffer immensely.—PETER GOWLAND

BOUNCE FLASH TABLE

Film Speed	25	50	Watt Seconds 100	200	400	800
10			f/1.4	f/2.8	f/3.5	f/4.5
32		f/1.4	f/2.8	f/3.5	f/4.5	f/6.3
100	f/1.4	f/2.8	f/4	f/5.6	f/8	f/11
200	f/2.8	f/4	f/5.6	f/8	f/11	f/16
400	f/4	f/5.6	f/8	f/11	f/16	f/22
800	f/5.6	f/8	f/11	f/16	f/22	f/32

ROBINO COLOR

(Continued from page 62)

even if you are using a recommended film-light source combination, you may find that your transparencies are slightly too warm (yellow) or too cool (blue) for your taste. A mild light balancing filter can easily remedy the situation. A number of firms, among them Eastman Kodak, Enteco, Walz, Tiffen and Accura manufacture them.

The problem of reflected color may become acute in bounce work. When using bounce flash or flood, avoid rooms with colored walls and ceilings. Even a

slight tint can drastically affect the overall color of a transparency. The solution: again, filters. But you'll have to experiment with them in order to establish the proper combination for a given set of conditions.

In color work, subject-lighting contrast is considerably more important than in black-and-white. There are only two ways in which contrast can be controlled: by choice of film (Kodachrome has more inherent contrast than either Ektachrome or Anschochrome) and by controlling lighting. Unless you develop your own color, processing is for all practical purposes standardized .-- P. C.

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FAMILY CAMERA

(Continued from page 88)

There are often definite rules that forbid using supplementary lighting during the wedding. But you'll be able to shoot, even with Kodachrome, if you have a really fast lens-f/0.95 for 16mm cameras or f/1 for 8mm. A fast color film such as regular or Super Anscochrome might be a better choice for low light. A slower fps speed, 8 fps, may help, too, if subjects in the scene are comparatively motionless. You probably won't be able to get close enough to use your normal lens, so take a tele along with you. Even with fast lenses and fast film, you may have to shoot underexposed footage. But remember, this is one place where even a poorly exposed image is better than none at all.

You may find that getting a really good, interesting shot of the reception line is almost impossible if you film from floor level. Shooting into a crowd may result in a jumble of half-blocked images. A chair, or better still, a balcony will present a more interesting angle—and provide a better look at faces.

Rapid cutting helps

Cut from medium shots to close-ups to give the reception pace. There's nothing more deadly than a shot lasting entire minutes showing nothing but an overall view of the bride and groom shaking hands or pecking at the cheeks of guests.

If there's dancing after the ceremony you can really capture one of the most cinematic moments of the wedding. Here's one way to make your dance shots more meaningful: If the dancing grows spirited, film a close-up of one of the musicians—the drummer, perhaps—and then cut to a shot of feet flashing swiftly about the floor. Step back for a medium view showing the couples, and then perhaps a quick cut of the bride laughing.

If you use supplementary light, and for many of the scenes you will, try placing your barlight on a stand away from the camera. This will give you more freedom to move without being tethered to the power cord. If the ceiling is low enough—say 8 to 10 ft. from the floor—bounce the light. Or, raise it so that it's directed at the scene from overhead. Two barlights, if possible, may be even better. This way, you can use cross lighting for sharper looking images.

And, before you leave, make sure you haven't lost your invitation. It will make an appropriate title which you can shoot after the film is edited.

Finally, don't be influenced by films or still pictures of other weddings. All too often we tend to follow rather prosaic examples of other photographers because they seem to be generally accepted as what wedding pictures should be like.—M. A. M.

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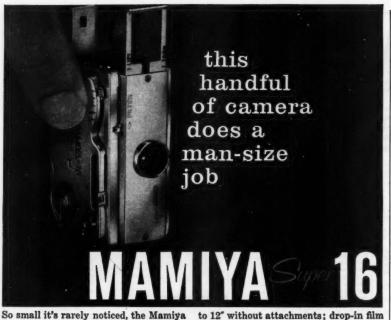
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DISCOVERY

(Continued from page 66)

When Harbutt applied for this job, he was under the impression that it would entail no more than writing, found to his surprise that he would be responsible for the design, layout, writing, editing and production of the magazine. Experience on school publications, academic training-and an extensive coverage of every aspect of magazine work in the University Library-saved the day.

Actually, Harbutt first became interested in photography through editorial work. In high school (he was an honors student at a New York private school) as well as in college, he was picture editor of various student publications, and in this capacity was expected to take photographs in addition to evaluating and organizing them. He got his first "serious" camera-a kind of bastard 21/4 x 31/4 view-press type-while he was shooting for his high school newspaper, during his sophomore year. (About this camera, Harbutt says, "It was made up of about four kinds of different parts. The lens was a Voigtlander, and I think the box came from Agfa.") Two years later he "graduated" to a Rolleiflex; then, during his first year at Marquette, he bought a Speed Graphic.

Harbutt's switch from studio and setup work to photojournalism took place while he was working for Strobo Research. On the advice of two professionals (Howard Sochurek of Life and Bob Gilka, the picture editor of the Milwaukee Journal) he bought a Leica. He began to take candids of people and to do stories. He sold his first story to Jubilee in 1955.

Photography: social comment

Unlike many young journalists, Harbutt is interested in the photograph as more than a means of social comment or criticism. All these pictures have been taken within the last two years. Two of them (page 66) on assignments for Jubilee magazine; the third, page 67, taken as a single shot, was for personal reasons. These pictures differ from one another in purpose, in content, and in use. Their divergence indicates quite clearly the range of interest of the photographer. The picture of the migrant farmer, at the top of page 66, is part of a documentary coverage of migrant workers. The picture beneath it of the operating room is from a feature essay planned with an editorial gimmick; to photograph the various parts of the anatomy (hands, backs, feet, eyes, etc.) so as to suggest their function in helping the sick. The circus picture, page 67, is purely lyrical; it serves no particular editorial function, it has no social or philosophical message.-P. C.

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NEW PRODUCTS

(Continued from page 91)

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Correction

The Graflex Mark II 35mm slide projector is equipped with a Sylvania Tru-Focus 500-watt lamp, not the 150-watt lamp reported in January New Products. The machine also accepts supersize slides.



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the MOVIE MAKER

by MYRON A. MATZKIN

Experimental Film Making: An uncharted field for the adventurous, imaginative filmer.



If you ever filmed a scene with your camera upside down, used 8fps when normal speed would be 16 or 24, or changed the apparent shape of an object by any of several techniques, or departed from the

accepted cinematic path in any of a multitude of other ways, you were consciously or unconsciously delving into the world of experimental film making.

This doesn't mean that you can erase a mistake you've made by simply calling it "experimental." Actually, an experimental film is the result of taking the mechanics of cinematography and coupling them with imagination to create a different way of seeing.

What you do may be entirely new—
or it may not be completely original.
Some other experimenter might already have beaten you to it. The
difference in your film and previous
treatments will lie in the effect that
your particular personality dictates
when employing a specific technique.

If you choose to use prisms to break up the image, or soft focus, or extreme wide-angle lenses for distortion, it's the subject matter and the particular approach you choose that will make your film different. For example, a 5.6mm lens can make a passing truck appear to bend, or a group of tall buildings appear to converge almost to a point at the top. A prism, really a piece of glass with two or more faces, breaks or multiplies the image—so that instead of one image of a subject, there may be several on each film frame.

Experimental films are born in the mind—and motion picture technique makes the dream a reality. In some instances, it even means dispensing with a camera and working in the fashion of Norm McLaren and Len Lye. These are two of the earliest experimenters in the creation of motion pictures directly on film—animation without camera or photochemistry.

These men actually scratch the image on each frame of film, using tools and colors readily available in any dime store. They achieve amazing frame to frame registration. Even when working with color, they use

paints commonly used for posters and other graphic arts production.

Lye first makes a test of the color by painting it on a piece of film and allowing it to stand for several weeks. At the end of that time, he mangles, twists and abrades the film. If the color remains, he knows it will work for a serious film essay.

If you're at all interested in the fantastic artistic freedom permitted by this type of animation, contact the Canadian Film Board for McLaren's Hen Hop or watch for Lye's Free Radicals at your local theater.

There are others who have worked with this form of experimental film making. Norman DeMarco has been experimenting, not only with the visual side of this medium, but also with lines drawn on the sound track portion of the film with pen and India ink. His work is similar to that of McLaren. The sound is scarcely related to the chromatic music to which we are accustomed. You may hear ricocheting impulses, elongated thumps, or even squishes. They become significant when coupled with the animation. DeMarco is also experimenting with "concrete" music, whose chief exponent is Paul Schaffer of France. Sounds are created from just about anything —breaking glass, sand paper or a plucked violin string. Recording is in the normal manner. The full effect is gained by careful attention to rhythmic arrangement and planning.

And there's a new type of music based on electronics that some of you may have heard in the science fiction film Forbidden Planet, an MGM picture. The film was scored by Louis and Bebe Barron, who created a completely new approach to film music.

Quite often on TV you'll see brief flashes of experimental technique—most often in the opening title of a show or in a commercial. But experimental techniques aren't confined to animation. A film such as Francis Thompson's N. Y., N. Y. uses distortion via prisms, mirrors and lenses to present a new look at a city that's been filmed literally thousands of times. The film is in nationwide distribution by United Artists.

Equally impressive is Daybreak Express, a work in progress that we saw recently by a young film maker, Don Allen Pennebaker. Its subject is the elevated section of a subway starting somewhere in the Bronx. The film attempts to capture (quite successfully) the many images, feelings, shapes and light qualities that a commuter might

(Continued on page 108)

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MUSEUM SHOW

(Continued from page 61)

Victory") or, man throughout the world is a great brotherhood in joy and sorrow ("The Family of Man"). Around the theme, photographic exhibits are assembled.

The culmination of Edward Steichen's genius for photo display was "The Family of Man." All theatrical display stops were pulled. Monster murals were made, Carl Sandburg contributed text captions, hidden speakers played a musical reed pipe theme. For the first time the museum was jammed with visitors there to enjoy a photo show. But it was the theme and not the individual pictures that proved successful. "The Family of Man" resembled a giant magazine picture story. Each individual photograph surrendered its identity (and the photographer's). Where could photo shows move after so lofty a production as "The Family of Man"?

But, Steichen has turned. Once having brought his audience in and taught them to look at photographs in story form, he has now challenged them to be adult and appreciate photographs for their sake alone.

Let's see how well he's doing. Unlike first reactions to the museum's shows of painting or sculpture, we first have an impression of clutter. The pictures are squeezed into a limited space with little room between. No attempt has been made at juxtaposition (the art by which photographs are hung together because they strengthen each other—a picture of tiny mouse next to a photo of a trumpeting elephant, to give a coarse example. Instead, each picture stands by itself.

As we enter the first exhibit hall, we pass a giant mural blowup of "Women of Kashmir" by Henri Cartier-Bresson. It has somehow now lost much of its strength. The "Women" are muddy and grainy. The print is fading badly. (Modern-day print makers are all too ready to quick-process enlargements by shortening fixing or washing time.) We noticed later on that almost all the museum's Cartier-Bresson pictures were fading. (Should a museum collect prints or should it acquire a copy negative of the picture for the permanent collection?) And why enlarge a 35mm photograph to such colossal proportions that quality disappears and it's all but impossible to get far enough away to see it properly? On to the exhibit.

Although no attempt has been made to place all the pictures in chronological order, and the vast majority of photographs shown are contemporary, the show does begin with early daguerrectypes and the work of William Henry Fox Talbot. One 1863 Fox Talbot photograph of wheat is as simple and pleasing a high key still life as anyone could make today. Here is a haunting and

rare Mathew Brady portrait of a Mrs. Edwards (must be the 1860's). Nearby are some of Brady's Civil War battlefield shots and portraits of generals-all familiar, yet how wonderful to see the excellent technical quality of the prints. In the center of the room is a grouping of Julia Margaret Cameron portraits (Darwin, Tennyson, Carlisle), contemporary to the Bradys. But look how soft the images are. Detail may be lacking but subject personality is not. Julia Margaret could well be the patron saint of all latter-day young photographers who are turning out grainy and fuzzy pictures with far less success.

Jacob Riis' 1888 pictures of a blind man on a New York street or Bandit's Roost, Mulberry Street, or Lewis Hine's 1905 family portrait of Italians landing on Ellis Island (see picture, page 61) are gleaming examples of photography's ability to help cause social change.

Forward we go-to a whole wall of portraits. Steichen's magnificent studio portrait of Paul Robeson as "The Emperor Jones" (1933), the earlier Steichen Theodore Roosevelt portrait (1908), the famous Karsh portraits of Churchill, Halsman's photo of Marian Anderson, and Alfred Eisenstaedt's fine rim-lit picture of Gilbert Miller. These photographers certainly knew and know light and how to use it. Nearby we find portraits by younger photographers. Some are by careful technicians, others seem deliberately to ignore light while taking the pictures and instead create their own illumination in printing by bleaching out highlights and printing in shadows. We were concerned by the seriousness of life as seen by many young photographers today. Leon Levinstein shows us people enjoying themselves on a beach (page 60) or are they holding onto each other for support? Wayne Miller and Homer Page haven't lost their ability to make us smile or laugh. We are amused by Page's observation of a lady's posterior in motion (page 61). Witness Ansel Adams' stark and dramatic moonrise landscape (see page 61), but we wonder why the print from Adams' large negative is so small when so large a print is made from Cartier-Bresson's 35mm?

Now we face Eugene Smith's grouping of six photographs—from great photo essays he has made. Here is top print quality, unexcelled classic composition, understanding of subject. A Spanish woman weaving, bites the yarn and in so doing leans in a graceful motion that a prima ballerina must envy. Only an original print can ever do justice to Smith's fantastic print quality.

Have you ever seen painter Ben Shahn's photographs—the early ones which he used as models for his famous paintings of handball players? The famous Dan Weiner portrait of Judge

(Continued on page 118)



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LUMIERE

(Continued from page 59)

One day early in 1894, a merchant of Lyons displayed in his store window an apparatus through which a person could see a series of small animated photographs pass in succession before his eyes. This was Thomas Edison's kinetoscope. The elder Lumiere brought one home from his next Paris trip. Taking it apart, the brothers inspected it closely. It occurred to Auguste that somehow it should be possible to show these kinetoscope scenes to a large audience sitting in a hall. How? By projecting them onto a screen.

The idea was not new. Marey had tried six years before and so had others. Nor was Edison's kinetoscope, as such, new. Various contraptions, such as the phenakistoscope, the praxinoscope, or the sootrope, had preceded. Through them viewers had seen simple, unconnected scenes: clowns standing on their heads, jugglers, ballerinas, mostly in white silhouette on black backgrounds.

What seemed necessary was to improve both the pictures and the presentation method. Some way must be found, reasoned Auguste Lumiere, to make a film go forward, allowing one picture to follow another at an absolutely even pace. He discussed it with his brother, Louis. They agreed that only one thing was needed—an actuating mechanism to make that process possible.

After a sleepless night, Louis produced a solution—the grip-holder frame. The rest was easy. In close cooperation, the two brothers and some of their factory engineers completed their apparatus and on February 13, 1895 they could take out a patent for their "Chronophotographic Apparatus." Patent No. 245032 became the birth certificate of the modern motion picture.

When the Lumiere Brothers showed their first pictures on March 22, 1895, it was behind closed doors.

Not only were the photographs clear images of things and people whose movements appeared natural, they were also connected shots treating a typical area of people's daily lives. In a one-minute, twenty-metre reel (about 61/4 ft.) the spectators saw a realistic and lively lunch recess at the Lumiere factory in

Another showing was arranged for June 10, 1895, in the brothers' home town, Lyons. The Congress of the Photographic Societies of France made up the audience. A new feature made the performance really remarkable. For one, the audience saw the first newsreel performance in history. Auguste and Louis Lumiere had photographed "location" shots of the Congress members themselves as they boated on the Saone River and strolled along its banks.

The brothers were ready for their

professional venture into commercial movies. In a movie theater in the basement of the Grand Cafe des Capucines, the historic grand opening took place in December, 1895. The Lumiere Brothers had done everything to make it a success.

Between 2000 and 2500 people had attended a Lumiere movie performance before the first part of January, 1896. Mr. Volponi no longer tore his hair.

A triumphal march began abroad. The brothers outdid themselves in promotion stunts. Visiting one foreign capitol after another, Auguste and Louis invariably showed their movies first to reigning sovereignty, thereby making kings and queens publicity agents without pay.

Operational scope widened fast and steadily for the Lumiere Brothers. They were movie makers, distributors, movie theatre people, makers of motion picture cameras, projectors and film.

Then, in 1900, Paris prepared for her World's Fair: "The manager of the Fair was seeking an attraction that would be big enough to make the visitors of the exhibition stay on the Champ de Mars, the fair grounds, all evening." The Lumiere Brothers had a simple solution, as Louis went on to relate: "A free movie show for a giant audience! The theatre had to have enormous dimensions, of course. But there was the famous Machine Exhibition Hall of 1889. It was about 1313 feet long and 372 feet wide. This, then, was to be the largest movie theatre in the world! We estimated that the measurements of the screen had to be 70 feet in height and 981/2 feet in width. The difficulty was to have such a large screen made. We approached a famous balloon manufacturer. He said it could be done. I arranged for this giant screen to be suspended from a line of bamboo-sticks laid end to end. Then there was the question of obtaining a source of light powerful enough for the projection of the tiny frames onto the far-away giant screen. I hit upon the idea of borrowing from the French Navy their largest projector. They were most cooperative and delivered a piece that had a mirror of almost 5 ft. diameter and an electric arc of 150 amperes. As soon as the giant screen was put up we had to meet a difficulty. The screen had to be wetted. But how could you wet such a huge piece that was about six stories high? I called the Fire Department. Clang-clang, they came, with their largest fire engine, complete with hose and pump, and gave the screen a most e icient wetting.

Louis Lumiere had devised a new actuating mechanism which, though only secondary in itself, had determined the future course of the brothers, but it was their enterprising spirit, resourcefulness, and inventiveness that eventually "made" the movies.

The Lumiere Brothers' camera was (Continued on page 118)

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MOVIE MAKER

(Continued from page 100)

experience on his way to work on any morning. While distortion techniques have played a role in making this film. perhaps the most singular factor is in the editing. One is reminded of Sergei Eisenstein's (the great Russian director whose films are considered classics) theory that one and one do not equal two—but rather two plus. That is, the juxtaposition of two scenes creates a separate and distinct image that comes alive in the mind of the audience-rather than on the screen. One's reaction to Pennebaker's film is much the same as listening to true jazz musicians building images and variations on a single theme.

Bridges

Another exciting experimentalist is Shirley Clarke, creator of a film called *Bridges*. She and her husband stood on the deck of an excursion boat as it traveled around Manhattan Island, and photographed the many bridges over the Island's rivers.

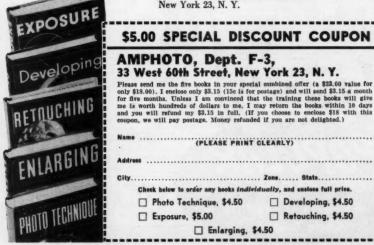
Each filmed counter to the direction of the other. If one panned his camera from left to right, the other panned from right to left. In making the final print, images from both cameras blend on the film so that they seem to enfold. Colors join, mingle and change. The result is an extremely poetic and personal film that presents the moods and shapes of bridges as they have rarely been seen.

Film festival

Probably the first international film festival of its size was held last summer at Brussels in connection with the World's Fair. Hundreds of films were entered (*Free Radicals* won second prize), many from the U.S. One we've seen here recently is *Highway*. Filmed on the parkways and expressways of a large city, the moving camera captures the fantastic shapes created by motion, structural steel and concrete.

These films have no story, possibly not even a beginning, or an end in the accepted sense. But they have a feeling of unity strangely their own—a form quite different than you'll see at the local theater. More important, they have a spirit and drive that says motion pictures are very much alive.

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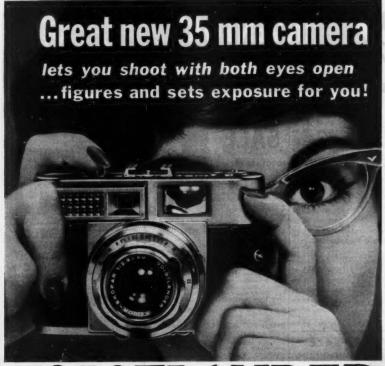


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ISOPAN RECORD

(Continued from page 70)

Agfa recommends 15-20 minutes at 68°F in Agfa Rodinal diluted 1:50. It is my opinion that 15 minutes is the preferred time. It gives moderate contrast and graininess and the film is quite tolerant of accidental overexposure. Development for 20 minutes does not appear to produce any extra shadow detail, but does push both contrast and graininess to what I consider to be excessive amounts. Agfa also recommends 9-12 minutes at 68°F in Agfa Atomal Neu, a fine grain developer. This produces a somewhat smoother looking result than Rodinal (which is anything but a fine grain developer), but apparently with some loss of film speed and, I think, a slight reduction in the high sharpness look which is Isopan Record's outstanding feature.

I tried a few standard developers to see how the results matched those obtained with Rodinal 1:50, 15 minutes at 68° F. Here are my impressions:

Kodak D-76, 10 min. at 68° F: much less shadow detail.

Kodak D-76, 15 min. at 68° F: a bit less shadow detail, considerably more dense highlights, too much contrast.

Ilford Microphen, 14 min. at 68°F: perhaps a very slight increase in shadow (Continued, top of column 3) detail, but at the cost of excessive contrast and too dense highlight areas.

Kodak DK-50, 7 min. at 68° F: a close match in shadow detail, contrast.

Kodak DK-50, 1:1, 15 min. at 68°F: a bit more shadow detail with somewhat higher, but not excessive, contrast. UFG, 7 min. at 70°F: Speed, contrast

UFG, 7 min. at 70° F: Speed, contrast close to results with Rodinal.—THE END

35MM

(Continued from page 44)

cent of the picture taking needs of both amateurs and professionals.

I've looked at quite a number of amateur cine zoom lenses and they are not very much bigger than single focal length lenses equivalent to the longest "stretch" of the zoom lens. So, a zoom lens for a 35mm camera could be fairly modest in size.

Price? Well, I don't see how such lenses could be inexpensive. But I see no reason why one should be more costly than the total cost of certain first-class 35, 50, and 90mm lenses.

Finally, it seems almost certain that the soon-to-be-available lenses will be for single-lens reflex cameras. It would make little sense to build such a lens for a non-reflex camera.

I must say that the prospect has me quite up in the air. OK, Dr. Back (or whoever has them), bring on your lenses—I can hardly wait.—THE END

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MODERN TESTS

(Continued from page 85)

or plastic. (No magazines required.) Single contact bayonet bulb (300-watt CYCT-10). Weight: 13½ pounds. Price: \$99.50. Manufacturer: Brumberger Sales Corp., 34-34th St., Brooklyn 32, N. Y.

Here is an automatic slide projector so trim and low-slung that you could slip it into the bottom of a closet and mistake it for a shoebox. We checked the dimensions to make sure: 4 1/2 x 9 x 11 1/2 -maybe a little bigger than a shoebox, but still small enough to make it easy to store.

When we picked up the Monarch we discovered that it doesn't weigh any more than a portable typewriter. Those 13 1/2 pounds of cast aluminum are quite an advantage and unique since many automatic projectors tend at times to the elephantine.

If you shy off from something automatic because it looks terribly complex-take our word for it, the Monarch's light gray outward appearance is more than reassuring. The slide section cover is of gold-colored aluminum, but there is nothing chrome-y about the projector. Four dials (automatic timer, lamp, elevation, focus) protrude modestly a little over 1/4-in., and the carrying handle folds into the frame around the projection lens.

To begin testing, we pushed on the sides of the gold cover with our thumbs. Up and off came the cover. We loaded the slides (mounted in Brumberger's #1160 metal mounts) into the slide section and detached the spring-tensioned pressure plate from the catch at the back. It came up and held them firmly in place. (All slides must be mounted, however.)

The blower-very quiet blowercame on as we plugged the machine in. We pushed the button marked "lamp," pulled out the feeder arm, pulled out the feeder arm, and gently fed in the first slide. Very smooth operation, no forcing necessary and also very quiet.

In focusing, we found that it's better to be careful than hasty. The lens fell out the first time we tried to focus, but we don't consider this the machine's fault.

We tried a combination of automatic projection, pushing the auto-matic timer to "off" in the middle of a slide group, switching to manual for a few slides and finally, back to automatic. No jamming. All slides were in focus, too. And we found the 10-sec. viewing time adequate in most

The Brumberger's 300-watt bulb projects a fairly brilliant image, with no more than normal fall-off at the corners. The lens is sharp, too.—B. B.

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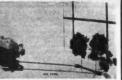
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MUSEUM SHOW

(Continued from page 102)

Learned Hand? Do you know Berenice Abbott's studies of New York? Werner Bischof's touching picture of two children asleep on mats? Bill Brandt's slum roof patterns? Robert Capa's shattering picture of a Spanish soldier being hit by a bullet during the civil war (1937) and the fuzzy, grainy shot of a G. I. wading ashore on D-Day (1944)?

The show goes on-Bruce Davidson, Y. Ernest Satow, William Maundphotographers Modern has published and hundreds of names quite unfamiliar

are represented.

We were happy to see fashion and commercial photography represented by Bert Stern, Irving Penn and Richard Avedon (see page 60).

Three areas of photography are shown in separate rooms-color, abstracts and the Japanese photographic exhibit.

The black-and-white abstracts range from William Garnett's aerials (page 60) to Roman Vishniac's super magnifications of chemical explosions. Should all the abstracts be grouped together or are they all, in one place, too much of one thing?

Why are the Japanese singled out as the only national group with a common exhibit? The Japanese do show a definite clinging to traditions. Who else but a Japanese photographer could photograph a coal mine in delicate high key or almost turn a heron into a Japanese ideograph character (page 60). However, here and there, a viewer could see a Japanese photographer picking up a few blood-and-guts techniques of the western photojournalistic school.

Alas for color! It must be Steichen's stepchild. The room containing the color photographs was a great disappointment. First the method of display hindered the viewing of the pictures themselves. Almost all were under glass which unfortunately, because of reflections, made viewing difficult.

Although we must assume that most photographers are actually making transparencies, the museum showed prints. Most were on the blue side, and rather lusterless. Only such prints as Penn's still lifes and Eliot Elisofon's portraits were alive, exciting and colorful. Paul Outerbridge's framed (why was it?) 1935 still-life carbro print of an alligator pear shows how far we've gone since then in refining the techniques for the best color prints (-not very). The remainder of the color exhibit with the exception of such work as Ernst Haas' New York pictures was made up of abstractions. Where were the thousands and thousands of great color shots which appear weekly in Life Magazine? And monthly in Modern Pho-TOGRAPHY and Popular Photography as well as in the photo annuals? Or is it a question again of permanency-that there is no sense in collecting color transparencies since they fade so dreadfully over a long period of years?

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By the time we were ready to leave the crowds of museum visitors and had regained our umbrella we realized that never before had anyone such a great opportunity to compare directly the styles and techniques of so many photographers. The audience was not racing through the exhibit but was actually studying each picture. The vast majority of viewers were not photographically oriented, but they had learned to apply their critical faculties to photography and were finding it enjoyable. Perhaps the color was poor, and some pictures were too large and others too smallno matter. Photography had arrived at a contemporary art level thanks in large part to the careful audience tutoring of Edward Steichen. The museum visitor would at last give the individual photographer and individual photograph the same attention he gave other branches of art and artists. Our hats (if we wore any) are off. Hurrah for the fox!-H. K.

LUMIERE

(Continued from page 104)

mobile and could record the outdoor world. Above all, the camera was adjustable so was usable as a movie camera and for projection purposes as well. It had a rotary shutter, the lens had a large aperture and was achromatic, having a short focal length.

In filming, the brothers devised a way to move the negative film step by step through a film gate and past an aperture where it was exposed to light coming through a lens. As the film had necessarily to be stationary during the short period of exposure of each individual picture, they installed an intermittent movement apparatus in the camera. This

was a triangular cam-the so-called Lumiere cam-which accomplished its task by means of a claw. By means of a sprocket the unexposed film was fed continuously from the magazine to the claw and after exposure in the aperture and passage through a gate, it was wound into another magazine.

As to the film used, Louis bought ready-cut strips of nitro-cellulose celluloid of approximately 18 metres length and 35mm width. He then covered this stock with his famous silver-bromide

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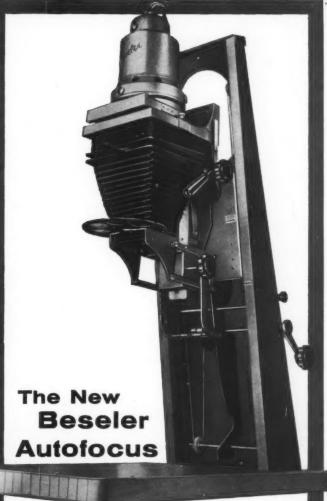




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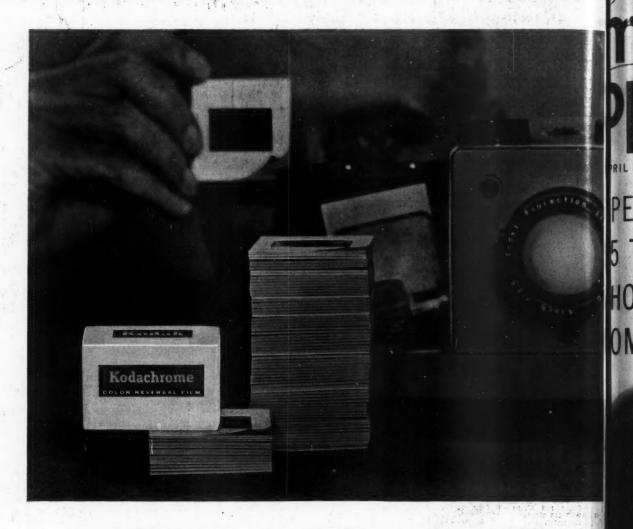
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